The Chemical Age

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NOTICES:—All communications relating to editorial matter should be addressed to the Editor, who will be pleased to consider articles or contributions dealing with modern chemical developments or suggestions bearing upon the advancement of the chemical industry in this country. Communications relating to advertisements or general matters should be addressed to the Manager.

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The Dead Sea Concession

THE long-expected announcement as to the Dead Sea salts concession was made in the House of Commons on Wednesday. The Colonial Office has decided "in principle" to grant a concession to Major Tulloch, formerly a British artillery officer, and latterly an engineer who has taken great interest in the exploitation of the Dead Sea, and Mr. Novomeysky, a native, we believe, of Russia, who has been associated with the Zionist movement. The three other applicants, it is understood, were a Mr. W. H. Tottie; Mr. W. Maitland Edwards, and Major Douglas Henry; and Dr. T. H. Norton, technical editor of *Chemicals* (New York), representing the Palestine Salts Corporation. The grant is subject to suitable terms and conditions being arranged and to satisfactory financial guarantees being given. Negotiations on these points are proceeding. It was officially announced in the House of Commons that the Government have no intention of obtaining a controlling interest in the concessionary company through the purchase of shares. It is of interest to note, however, that on the day the concession was announced subscription lists were opened and promptly over-subscribed for an issue of £4,475,000 Palestine Government 5 per cent. stock, principal and interest guaranteed by the British Treasury, for the purpose of providing harbours, railways, and various public works. Transport, it will be remembered, has always been recognised as one of the chief problems in the development of Dead Sea minerals. It is clear that a company is to be formed, and that the parties to whom the concession has been provisionally granted represent important interests. Further information respecting the scheme may be expected in due course.

Power Alcohol Research

THE fourth memorandum of the Fuel Research Board on "Fuel for Motor Transport," published this week (pp. 26, 9d.), records a distinct advance in chemical research on the production of power alcohol from grasses, straws, and waste vegetable materials. It describes in detail the work carried out for the Board at the Bacteriological Laboratory of the Royal Naval Cordite Factory by Dr. A. C. Thaysen on the production of liquid fuels for internal-combustion engines from the materials mentioned, together with a general description of a plant for the purpose. In seeking for an economic process for this purpose, it had to be remembered that vegetable materials such as those described, which are frequently spoken of as "cellulosic materials," are not composed primarily of cellulose, but contain more than 50 per cent. of other substances, namely, hemicelluloses and lignocelluloses, which differ fundamentally from cellulose in their chemical constitution and in their behaviour towards micro-organisms.

Clearly the ideal process would be one in which the main constituents were converted by a simple biological process into alcohol or, failing this, by separate processes for converting each constituent. Such a process would obviate the necessity of preliminary chemical operations involving the use of acids, and of other complications. In view of the fact that no such process was known, and that a search for a suitable organism might involve years of unproductive work, it was considered desirable in the first place to attempt to evolve an efficient chemical biological process, *i.e.* acid hydrolysis of the cellulosic material, followed by the fermentation of the monosaccharides produced. The cellulosic constituent, although built up of glucose residues, cannot at present be broken down into glucose, except by means of concentrated acids such as are employed in the Prodor process. The chemistry of the lignocelluloses is little understood. The hemicelluloses, however, are much more easily hydrolysed, and, having regard to the difficulty of obtaining acid in places where sufficient quantities of raw material would be available, it was decided to limit the investigations to dilute acid hydrolysis of the hemicelluloses and the subsequent fermentation of the resulting simple

pentose sugars. The methods and results are described in the report, together with a brief chapter on the possibilities of suction gas producers using anthracite, coke, and, more particularly, wood and charcoal, for motor transport vehicles.

The general conclusion is that the present research work has established the details of a process which should present no real technical difficulties once the raw materials are available in sufficient quantity and at a sufficiently low cost. When waste vegetable materials can be treated where they are available without further expense of collection, it would appear that their conversion into alcohol, for use in internal-combustion engines as an alternative to petrol, should be investigated from the point of view of the suitability of the process to local conditions and to that of costs. The question of grasses, however, would be somewhat different, owing to the fact that the cost of harvesting and transport might make their use economically impossible. This, again, is a matter depending on local conditions once their technical suitability for the purpose has been established.

Russia and Chemical Warfare

THE Russian scheme of disarmament, propounded by M. Litvinoff at the League of Nations Preparatory Commission at Geneva on Wednesday, will be received by chemists with a natural reserve—not that they are less interested in world peace than any other class but because they know a little more about the science and industry of chemistry than the Soviet Assistant Foreign Commissar. On general grounds, too, a State which regards its Red Army, its fighting aeroplane fleets, and its toxic gas factories with such admiration may have much to learn itself about peace before it proceeds to instruct the rest of mankind how to live without war.

One of the Russian proposals is the suppression of all factories which, although industrial in time of peace, may be converted to the production of munitions of war in time of war. This would appear to involve the suppression of gasworks, dyestuff works, chemical works in general, and a great proportion of our engineering works, for all of these are capable of playing an important part in war. The dyestuffs industry, for example, has its roots in organic chemistry, and because it is possible to switch the plant and processes over from the production of industrial products to products required in war they are apparently to disappear altogether. The proposal is nonsense. Then there are the works for the fixation of atmospheric nitrogen. These, again, producing synthetic fertilisers in ever-increasing quantities, would have to be closed down lest they might be used, as Germany used them, for the supply of synthetic nitrate while we had to import the natural article from Chile. Pursued to its logical conclusion, the argument would imply the closing down of the Chilian nitrate industry on the ground that it is a potential source of explosives. The same argument would apply to chemical works of nearly every class. If, indeed, nothing industrial is to remain which is capable of being perverted to evil uses, pretty nearly every form of industry would have to go. Meanwhile, if our synthetic supplies of nitrate, etc., were to be closed, Russia herself might find a new and profitable use for the natural deposits of many kinds that the country possesses but which it lacks the technical skill and commercial organisation to handle. The Russian proposal, in short, looks very much like piety beaming out of one eye and calculation winking out of the other.

The attempt to arrest scientific and industrial activities on the ground that the results may be wrongly used in the wrong hands seems to us to rest on a fallacy. The real guarantee of the right use of all these things lies in a higher standard of education and civilisation, in the substitution of a peace mentality for a war mentality. Russia's doctrine of class consciousness and class warfare is one of the most fertile seeds of war mentality, and until Russia herself seeks peace and ensues it, among her own population and in relations with other nations, these "stagey" proposals for universal disarmament will be taken at their proper value.

Empire Phosphate Supplies

THE address of Mr. Harold Briggs, M.P., to an agricultural committee of the House of Commons, drew attention pointedly to an apparent neglect of the important phosphate deposits on the Naura and Ocean Islands in the Pacific. Under the agreement of 1920, Great Britain and Australia are each entitled to 42 per cent. of the phosphate rock obtained and New Zealand to the remaining 16 per cent. It appears, however, that Australia and New Zealand are taking not only their own portion, but the greater part of Great Britain's share, through the apathy of this country. Mr. Briggs's claim is that Naura phosphate can be brought to this country at a price which would enable British farmers to have both the ground phosphate rock and manufactured superphosphate at a lower price than they pay to-day, and that British manufacturers of superphosphate might be able to work at a profit instead of at a loss. The decline of the superphosphate industry in this country is beyond doubt. The consumption which in 1913 was 807,000 tons had fallen by 1926–17 to 684,000 tons, yet not an ounce, it is stated, of Naura-Ocean phosphate rock is coming to this country.

The case put before the Committee resolves itself into the following concrete proposals, which will no doubt have due consideration:—1. That the rate of interest upon the Government capital outlay on these islands should be reduced. 2. That the three Governments should jointly instruct their Commissioners to investigate the costs and report what would be the lowest possible f.o.b. cost, calculated upon an output of 1,000,000 tons per annum. 3. That our full share of Naura-Ocean phosphates under terms of the 1920 agreement should be brought to this country. 4. That a board of control be in due course appointed to fix and regulate the basic price at which Naura-Ocean superphosphates and ground rock phosphate should be sold to British farmers. 5. That the Government should educate the farmer to the use of high grade ground rock phosphate and superphosphates, and make plain to him the true comparative unit value of the Naura-Ocean product. A special sub-committee was appointed to consider the proposals made by Mr. Briggs and to prepare a report.

The B.A.C. Position

THE members of the British Association of Chemists, at their annual meeting last week, found themselves in the position of many another comparatively young society—that is, surrounded by a number of older and powerful bodies among which they have to work to keep their footing, but able to find compensation for their efforts in the knowledge of excellent practical work done for working chemists. Like journalists and bank clerks and other classes, the working chemist finds himself drawn in two directions. On the one side there is the temptation to become frankly trade unionist, and to concentrate on the practical issues of wages and conditions, on the principle that, if these are right, questions of professional dignity will look after themselves; on the other side is the sense of belonging to an educated and professional class, to whom chemistry is a vocation as well as a livelihood, and who cling to the idea that their work for science means something more than bread and butter. Already for the one wing there is a recognised trade union for chemical workers and for the other the recognised professional organisation the Institute.

The existence of the Association, the number of its adherents, the practical work it is able to do all attest that nevertheless somewhere between these limits there is ground that needs to be covered in the interest of the working chemist. How far there is scope for development beyond the present attainments without encroaching on or overlapping other organisations, time will show. It is enough for the moment to recognise that the Association has useful work to do, and that it is doing it efficiently. There has been progress during the past year; there are duties immediately in front; and the zeal and loyalty of the members to their own Association show no sign of abatement, but rather evidence of increasing interest.

Princely Pay

A LITTLE publicity as to the princely conditions under which qualified chemists occasionally have to work does no harm, and we are glad to see the *Daily Mail* opening its widely-read columns to the following example, contributed by an associate of the Institute of Chemistry. "My salary," he writes, "is £20 per month, working 12 hours a day and seven days a week, which works out at a little over 1s. an hour. Every fortnight I change over from night to day work, or *vice versa*, and during the change over have to work 18 hours without a break. No time whatever is allowed off for meals. General labourers employed by the factory work eight-hour shifts, and are paid 11½d. per hour and, moreover, get extra pay for Sunday work, which the chemists do not obtain." In the general fitness of things, it seems right that firms who set so miserable an estimate on the value of scientific service should find themselves unable to pay any more.

Books Received

UNIVERSITY OF LONDON, UNIVERSITY COLLEGE, Centenary Addresses. London: University of London Press, Ltd. 12s. 6d.

FUEL FOR MOTOR TRANSPORT. FOURTH MEMORANDUM. POWER ALCOHOL FROM GRASSES, STRAWS, AND WASTE VEGETABLE MATERIALS. Department of Scientific and Industrial Research. London: H.M. Stationery Office. Pp. 26. 9d.

MANURES AND MANURING. By Frank Ewart Corrie. London: Chapman and Hall, Ltd. Pp. 168. 5s.

The Calendar

Dec.		
3	Oil and Colour Chemists' Association (Manchester Section): Third Annual Dinner. 7 p.m.	Grand Hotel, Manchester.
5	Society of Chemical Industry (London Section): "Automatic Analysis of Liquids and its Application to Control of Water Softening Plants." Dr. H. S. Hatfield. 8 p.m.	Burlington House, Piccadilly, London.
5	Institution of the Rubber Industry (London Section): "Efficiency Methods in the Rubber Industry." W. W. Hamill.	Engineers' Club, Coventry Street, London.
5	University of Birmingham Chemical Society: "Recent Advances in Stereochemistry." Professor T. M. Lowry.	University, Birmingham.
5	Royal Society of Arts (Cantor Lectures): "Alloy Steels, their Manufacture, Properties and Uses." Professor H. C. H. Carpenter. 8 p.m.	John Street, Adelphi, London.
6, 13	Royal Institution of Great Britain: "A Year's Work in X-Ray Crystal Analysis." Sir William Bragg. 5.15 p.m.	21, Albemarle Street, London.
6	Institute of Chemistry and Society of Chemical Industry (Edinburgh Sections): "Electro-Synthesis." Professor Sir James Walker. 7.30 p.m.	36, York Place, Edinburgh.
6	Institute of Metals (N.E. Coast Section): "Hot Extrusion Process." J. E. Newson. 7.30 p.m.	Armstrong College, Newcastle-on-Tyne.
7	Society of Public Analysts. 8 p.m.	Burlington House, Piccadilly, London.
7	Institution of the Rubber Industry (Scottish Section): Joint meeting with the Edinburgh Section, Society of Chemical Industry and the Institute of Chemistry. "Some Features of Sulphur for Rubber Manufacture." Dr. D. F. Twiss. "Naphthas and Their Uses." C. Chapman.	Cadora Restaurant, Union Street, Glasgow.
7	Society of Chemical Industry (Nottingham Section): "The Indole Group of the Alkaloids." Professor R. Robinson. 7.30 p.m.	University College, Nottingham.
7, 8, 9	Institution of Chemical Engineers. Conference.	Burlington House, Piccadilly, London.
8	Oil and Colour Chemists Association: "The Application of X-rays to Industry." Dr. G. Shearer. 7.30 p.m.	8, St. Martin's Place, Trafalgar Square, London.
8	Society of Dyers and Colourists (Midlands Section): "Standardisation of Dye Fastness." F. Scholefield. 7.30 p.m.	University College, Nottingham.
8.15	Royal Institution of Great Britain: "Petroleum Natural Gases and Their Derivatives." James Kewley. 5.15 p.m.	21, Albemarle Street, London.
9	University of Birmingham Chemical Society: "Chemistry in Relation to Agriculture." Sir John Russell.	University, Birmingham.
9	West Cumberland Society of Chemists and Engineers: "Fuel" (with special reference to Low Temperature Carbonisation). J. W. Mitchley. 7 p.m.	Technical College, Workington.
9	Society of Dyers and Colourists (London Section): "The Tinting of Foodstuffs." Dr. H. Drake Law.	London.
9	Society of Dyers and Colourists (Manchester Section). Joint meeting with the Institution of the Rubber Industry. "The Colouring of Cold Cured Rubber." W. E. Sanderson. 7 p.m.	36, George Street, Manchester.
9	Oil and Colour Chemists' Association (Manchester Section): "The Application of Methods of Dyestuff Analysis to the Examination of Pigments and Lakes." Professor Arthur G. Green. 7.30 p.m.	Milton Hall, Deansgate, Manchester.

Official Announcement of Grant of Dead Sea Concession

Offer of Messrs. Novomeysky and Tulloch Accepted

The announcement of the grant of the Dead Sea concession to M. Novomeysky and Major Tulloch is of very considerable interest. Below is given an account of the negotiations which preceded this announcement.

In the House of Commons, on Wednesday, Colonel Howard-Bury asked the Prime Minister whether, in view of the value of the Dead Sea salts concession to the British Empire, he would take steps to ensure that the control remained in British hands, that the company was a British company, and that the chairman was a British subject, or that the Government, as in the Anglo-Persian Oil Co., would obtain a controlling interest by the purchase of shares; whether he had received any applications for the concession; and whether there was in contemplation the selection of any one applicant or group of applicants. Mr. Ormsby-Gore (Under-Secretary, Colonial Office), who replied, said four applications were received, and it was decided, in principle, to grant a concession to Major Tulloch and Mr. Novomeysky based on their offer, provided that suitable terms and conditions could be agreed upon with them and that they furnished satisfactory financial guarantees. Negotiations on these points were still proceeding, and it was not possible at present to state what provisions the concessions, if granted, would include. There was no proposal, however, that his Majesty's Government should obtain a controlling interest by the purchase of shares in the Concessionary company.

Colonel Howard-Bury then asked whether the Government would consider acquiring a controlling interest, while Colonel Wedgwood asked whether it would not be advisable in this case that the Government should have an interest similar to their interest in the Anglo-Persian oil. Mr. Ormsby-Gore said that that was a matter that had been examined, but whatever the salts might or might not be worth, the process of getting them out and marketing them made the whole business very experimental and necessarily speculative, and he did not think it was advisable to ask the British taxpayer to invest money at this stage in an enterprise of this kind.

Mr. Skelton asked whether the Minister would consider the importance of limiting the concession strictly, as far as time was concerned?

Mr. Ormsby-Gore: That it should be leasehold—certainly. I cannot verify, without reference, details of that kind. If a question is put down as to the terms of the lease I will see if I can give an answer. All these matters are now being negotiated, and I may not be able to divulge them immediately.

Sharing the Profits

The subject was also raised in the House of Lords by Lord Islington. Lord Lovat gave a reply similar to that given in the House of Commons, and added that the Government were satisfied that Major Tulloch and M. Novomeysky, with their financial backing, were suitable for the carrying out of the work. The Government's object was to get the work done, and done independently of any combine such as existed at the present time. A feature of the concession would be the question of the share of the profits to the countries concerned, which would eliminate, or at all events lessen, some of the political difficulties. The Government had no intention of confining themselves to any single department when they required advice on any portion of the contract.

History of the Negotiations

The history of the negotiations is as follows: In May, 1925, an invitation was issued by the Crown Agents for the Colonies to submit tenders for the right of recovering the mineral salt present in the Dead Sea. October 31, 1925, was fixed as the final date for the reception of tenders, and four were submitted, the applicants being:

(1) Mr. W. H. Tottie, of London, director of the Canadian Merchants and General Trust, Ltd.

(2) Mr. W. M. Edwards and Major J. D. Henry (jointly): Major Henry is a native of Australia, having had considerable mining and engineering experience. He fought throughout the war, partly in Palestine, where he served as an engineer with the camel brigade.

(3) M. Novomeysky and Major T. G. Tulloch (jointly): M. Novomeysky was born in Siberia, and educated in a German mining works, and has had considerable mining and metallurgical experience. For some years he has been a resident in Palestine, in the economic development of which he has taken a keen interest. Major T. G. Tulloch, formerly of the Royal Artillery, served during the war as superintendent of Research at Woolwich, and is an engineer. When Jerusalem was occupied by General Allenby in 1917, Major Tulloch urged upon the British Government the necessity for an investigation of the technical possibilities of the Dead Sea, which was, in fact, then made.

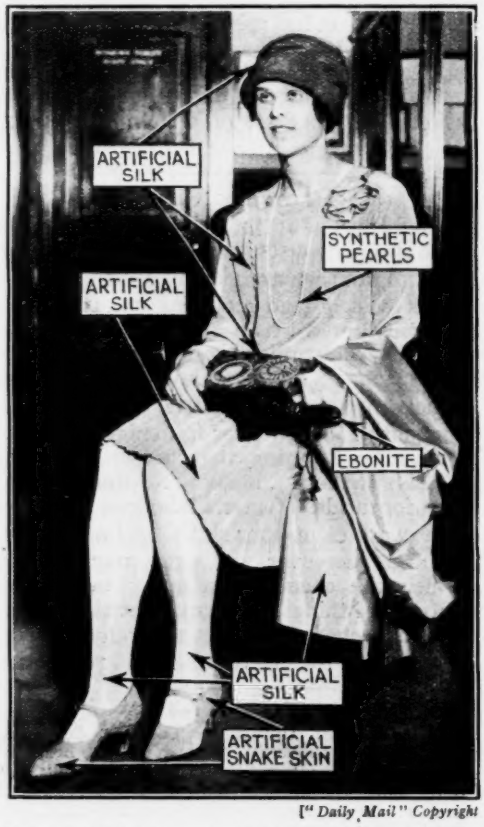
(4) Dr. T. H. Norton (of the United States), supported by a company known as the Palestine Salts Corporation: Dr. Norton is a chemist, being scientific and technical editor of the American journal *Chemicals*. For 17 years he was professor of chemistry in the University of Cincinnati. For six years he was an American Consul in the Ottoman Empire, and he is very familiar with Palestine. He has published a number of researches on pure and applied chemistry.

In October, 1926, the Crown Agents for the Colonies announced that the tenders submitted in October, 1925, were not acceptable, and invited revised tenders prior to January 1, 1927. It is presumably the revised tender submitted by M. Novomeysky and Major Tulloch which has now been accepted.

The Patron Saint of Chemistry

The Modern "Flapper"

The description by Dr. E. F. Armstrong, at the annual dinner of the British Association of Chemists, of the "Flapper" as the patron saint of chemistry, has been reported in several daily journals this week, together with diagrams of a modern



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girl almost completely arrayed in synthetic products. The photograph above is reproduced by the courtesy of the *Daily Mail*, which, in addition, published an interview on the subject.

British Association of Chemists

The Trade Union Problem

THE tenth annual meeting of the Association was held in London on Saturday, November 26, Professor G. T. Morgan, the President, in the chair.

The treasurer (Mr. W. H. Woodcock) pointed out that the improved financial position of the Association had been maintained. The Unemployment Benefit Fund was in a satisfactory position, and owing to the increased subscription had paid out this year £1,035 in benefits, the largest sum ever disbursed in one year. (Applause.)

Mr. S. R. Price, chairman of the Council, in moving the adoption of the annual report, alluded to the great increase in prestige that the Association enjoyed. This did not mean that its efforts to increase its membership and influence ought to be abated. On the contrary, the fact that a large amount of work remained to be done should encourage every member, whether councillor, official, or ordinary member, to do his utmost to increase its influence. All were united in the realisation of this duty and because of this sense of responsibility the Association would go on from strength to strength.

Election of Officers

The following officers were elected for the coming year:—President, Professor G. T. Morgan; Vice-Presidents, Sir Max Muspratt, Dr. Wm. E. Kay, Mr. F. Scholefield, Mr. C. S. Garland, and Professor E. C. C. Baly; Hon. Registrar, Dr. E. H. Rodd; Hon. Treasurer, Mr. W. H. Woodcock; Hon. General Secretary, Mr. H. T. F. Rhodes.

It was with great regret that the resignation of Professor Heilbron as vice-president and that of Mr. R. Brightman as hon. editor were accepted. Allusion was made especially to the loyal services rendered to the Society by Mr. Brightman for so many years, and great satisfaction expressed that he would continue unofficially to assist in the Association's work.

Political Rules

Considerable discussion arose in connection with the resolution of the London Section: "That the London Section recommends that the Political Rules, Part 1, XXIII (1/13) be deleted, and cease to have effect as from November 26, 1927." The London Section had suggested that since the Association was registered as a Trade Union only for convenience, that it was improbable that it would desire to canvass candidates for Parliament before election at any time, and that since in any case the rules would have to be altered in view of the new Trade Union Bill, it was probably most convenient to delete the rules altogether. On the other hand, it was held that although the Association did not desire to follow the ordinary Trade Union policy the deletion of the rules might hamper its Parliamentary interests at some future date.

Dr. F. W. Kay, of Liverpool, opposing the motion, said that they wanted to get certain aspects of their activities before the House of Commons—notably the problem of the registration of the chemist. That would be a political matter, and they would have to do a certain amount of lobbying to accomplish it.

Mr. H. H. Morgan, of London, said they were not under a very good banner in describing themselves as a registered trade union. Had not the time come when they should consider the dropping of the trade union label and becoming a registered association—or even consider trying to get a charter?

Mr. S. R. Price, referring to 41 resignations during the year, said that resignations were more and more caused by members leaving the profession. They were leaving because they could not make a livelihood in it. It is one of those things which the Association and the Council were considering.

The resolution was lost by a narrow majority.

Publishing the Register

In regard to the resolution of the Birmingham Section: "That the Council is hereby instructed to publish a register of all members of the B.A.C. containing their names and addresses as at January 1, 1928," considerable discussion arose. It was regarded as most undesirable that the impression should gain ground that any member of the Association was other than proud of his connection with it, and for this reason that the Council were thoroughly agreed as to the principle of publishing a register. On the other hand, it was contended that the legal question as to who should have access to the register would require to be investigated, and such practical considerations as those of expense ought to be considered. The resolution was carried by a narrow majority.

President's Address

In his address to the meeting Professor Morgan alluded to the question of the title chemist, and touched upon the various difficulties, legal and practical, which arose in this connection. In his opinion the Unemployment Benefit Fund had done work of which not only the Association but the whole profession ought to be proud. (Applause.) Of the Legal Aid Fund something had already been said, but he was of opinion that the results were of an importance which extended beyond the benefits conferred upon the individual recipient. Adequate legal protection increased the status of the whole profession. The Association was a small body as yet, but its potentialities were very great and before it he felt sure was a great future. (Applause.)

The Annual Dinner

At the annual dinner in the evening over which Professor Morgan presided, the speeches were mainly of a pleasant personal character. The speakers included Mr. J. R. Johnson, Miss Wright, Mr. S. R. Price (who alluded to the Association's good relations with Government departments), Mr. Rhodes (who referred to the growth of the Association), Mr. E. R. Bolton, Dr. Haas, and Mr. H. W. Rowell. During the evening a presentation was made to the general secretary in acknowledgment of his services to the Association, to which Mr. Rhodes briefly replied.

Chemist or Chemical Practitioner

Professor Morgan, in responding to the toast of the Association, stated that during the selection of a very small staff of chemists at Teddington no fewer than 1,263 applications had to be examined. When chemists applied at Teddington they were always referred to Form 174, which they had to fill up in full. Among other intimate particulars, they had to state whether or not they were free from any financial embarrassment. One replied: "Certainly not, or I should not be applying for this post." (Laughter.) Another declared that he was perfectly free from embarrassment, as he had £200 in War Savings Certificates. A third stated that he was free at present, but was contemplating marriage. (Laughter.) The department at Teddington was growing very slowly, but as an illustration of the growing use of chemists in industry, he mentioned that whereas the firm of Lyons started with three chemists, they now employed about 70, as they evidently found it paid.

With respect to the title "chemist," they had gone very fully into the question whether they should press for registration as "chemist" or "chemical practitioner." Personally he did not like the term "chemical practitioner," and with regard to the title "chemist" the Pharmaceutical Society had a legal title to the term as applied to practising pharmacists. They were not likely to relinquish the title, and in addition the public for a long time to come would associate the title with the gentleman who displayed bottles of coloured liquids in his window. A further difficulty was the great diversity of occupations among chemists. A medical practitioner or a lawyer had a clearly defined field, but there was an immense diversity in the types of chemists and the positions they occupied. In spite of these difficulties they could all aim at the general idea of unity among chemists, and that was one of the Association's objects.

The Synthetic Age

Dr. E. F. Armstrong, in proposing the toast of "Kindred Societies," said that there ought to be no such things as kindred societies; there ought to be one society. If chemistry wanted a banner he suggested that on the one side they might have the hexagon and on the other the flapper. The former indicated the wonderful way in which chemical theory had advanced to the present stage of physical chemistry, while the other represented the astonishing applications of the

knowledge gained in the production of synthetic articles that had greatly added to beauty and utility. "The flapper," he said, "has rings on her fingers with synthetic stones wrought by chemists. She has footwear made of artificial skins wrought by chemists. She has clothing the materials of which are one of the greatest achievements of the chemists. The very sheen on her hair is perhaps synthetic, and on her face are the lingerings of the products of, perhaps, the British Dyestuffs Corporation. Almost everything which the flapper wears to-day, even to bracelets and bangles, is the work of the chemist." "The world," he added, "makes from 40,000 to 45,000 tons of silk a year from silk-worms—there is no prospect of making more. We made last year 100,000 tons of artificial silk, and that quantity can be increased according to the demand." Chemistry, it might truly be claimed, was serving nobly the interests of mankind.

Important Extensions at Billingham

Plant and Staff to be Increased

IMPERIAL Chemical Industries, Ltd., announce that they have decided to proceed at once at Billingham-on-Tees, with the erection of two further units, each with a capacity of 50,000 tons of nitrogen per year. Each unit will consist of an ammonia plant to produce 165 tons of ammonia per day, together with the subsidiary plant to convert this ammonia into ammonium sulphate, ammonium nitrate, nitro chalk, ammonium bicarbonate, and other products.

It is hoped to complete this programme by the middle of 1930, when the total output of Billingham will amount to 250 tons per day of ammonia, which is equivalent to some 2,100 tons of sulphate per day, or over 750,000 tons per year. The extension of the plant already under construction has been placed with Dorman, Long and Co. for 25,000 tons of constructional steel work.

Considerable additional employment will be given to the district. At the present time, approximately 5,000 men are being employed by the company apart from constructor men, and it is expected that this number will be increased by 10,000 during the present programme.

New Chemical Research Council

IN order to provide a co-ordinated body for determining the lines of general industrial research, Imperial Chemical Industries, Ltd., have established a research council. The research council will be presided over by Sir Alfred Mond, chairman of the company, and the other members will be:—Dr. G. C. Clayton, M.P., Colonel G. P. Pollitt, and Mr. J. Rogers (directors); Major F. A. Freeth, F.R.S., Dr. E. F. Armstrong, F.R.S., Dr. R. E. Slade, Mr. H. A. Humphrey, and Sir Frederick Keeble, F.R.S., all of whom are associated with Imperial Chemical Industries, Ltd., or its subsidiary companies; Professor F. G. Donnan, F.R.S. (Professor of General Chemistry, University College, London), Professor Robert Robinson, F.R.S. (Professor of Organic Chemistry, University of Manchester), Professor W. A. Bone, F.R.S. (Chief Professor of Chemical Technology, Imperial College of Science), Professor F. A. Lindemann, F.R.S. (Professor of Experimental Philosophy, Oxford), Dr. E. K. Rideal (Lecturer in Physical Chemistry, Cambridge), and Major A. E. Hodgkin, secretary.

The main function of the Research Council will be advisory, and it will act as a clearing house for ideas. Steps have also been taken for following up all promising matters which may come before the Council. The Council will provide close *liaison* between industry and the universities and will promote both long-distance scientific industrial research and research of the so-called purely academic type.

Carbon Dioxide Detection Apparatus: £100 Prize

THE Royal Society for the Protection of Birds is offering £100 for the invention of a portable apparatus for the detection of small quantities of carbon dioxide in the mines, which should supersede the present use of canaries and wild birds, now forming part of the equipment of rescue brigades. The adjudication will be provided by the Secretary for Mines. Full particulars may be obtained from the secretary of the Society, 82, Victoria Street, London, S.W.1. The closing date is March 31, 1928.

Institution of Chemical Engineers

Notes on the Recent Examination

THE following extracts are taken from the report of the Board of Examiners on the examination in June-July last for the Associate-Membership of the Institution:—

"The holding of the second public examination in chemical engineering in this country in June-July of this year, not unlike the first, has revealed features which call for comment. In preparing the questions, no attempt was made to depart from the standard which was set in the examination of 1926. On the contrary, the questions were designed to test not only the knowledge of the candidates in the matter of fundamentals, but to ascertain their ability to attack some of the ordinary problems with which a chemical engineer is faced. While some of the questions concerned some special aspect of the technology of a particular industry, others invited a decision on aspects relating to the solution of typical chemical engineering problems and the application of fundamental chemical engineering knowledge and economics.

"The work of some of the candidates reached a much higher level than in 1926, and ability has been shown in the application of physical-chemical and engineering principles to the solution of given problems. There is still, however, a tendency to ignore the specific points in respect of which information is sought, and for the replies to be of a general or descriptive character, and unnecessarily diffuse. In future examinations it is recommended that questions bearing on the 'Outline of Training' should be confined to three written papers, and that the fourth should be assigned to the preparation of a simple working drawing. The second examination has again revealed that most of the candidates are lacking in a knowledge of heat transfer."

Presentation to Mr. Gordon Robbins

MR. GORDON ROBBINS, who, after twenty years' service on the editorial staff of *The Times*, resigned the position of day editor in order to become deputy-chairman of Benn Brothers and of Ernest Benn, Ltd., was invited to the Board Room in Printing House Square on Friday, November 25, to receive a presentation from his former colleagues. The presentation consisted of a writing table, chair, and book of signatures of nearly two hundred subscribers to the testimonial. The writing table is a beautiful piece of work carried out in old mahogany, after the Chippendale style, by Worth (Decorations), Ltd. The chair, also of old mahogany, is a copy of an unusual eighteenth century type.

The presentation was made by the editor (Mr. Geoffrey Dawson), in the presence of most of the members of the editorial staff and of several representatives of other departments. The editor in a short speech congratulated Mr. Robbins on his new position in Fleet Street, and expressed the opinion that Sir Ernest Benn was wise and fortunate to seize him. He added that he was sure that he would make an immense success of his new life. The manager (Mr. W. Lints Smith) told the gathering that he had advised Mr. Robbins to take the opportunity offered him, because in Sir Ernest Benn's business he had an opportunity which he was perfectly sure he would seize.

Mr. Robbins, in returning thanks for what he described as "an extraordinarily handsome presentation," assured his old colleagues that they and the paper would never be far from his thoughts.

German Predictions of Oil from Coal

DR. BRUECKMANN, a director of the Erdoel and Kohlenverwertung Gesellschaft, in a lecture on Friday, November 25, stated that with an expenditure of between four hundred million and five hundred million marks Germany would be able within ten years to erect sufficient coal-refining plant to produce the 2,500,000 tons of motor fuel which she required annually. His estimate, he said, was based upon the latest developments of the Bergius process for recovering oil from coal. This process, he declared, was so far advanced that it was already possible to extract 12 cwt. of motor fuel from one ton of coal. Plants with an output of 50,000 tons could, in his view, work with a net profit of about 50 marks a ton.

Malayan Varnish Resins

A Lecture by Mr. Hedley Barry

MR. T. HEDLEY BARRY, in a lecture before the Royal Society of Arts, in London, on Wednesday, November 23, dealt with Malayan varnish resins, with special reference to the work of the Forestry Department of the Federated Malay States and Straits Settlement in the development of the damar industry in the Malay Peninsula. The officials of the Forestry Department, he said, were endeavouring to supply us with definite standard grades of the resins found in their forests, the botanical origin of which shall be known, and the freedom from adulteration guaranteed by the Department. This was indeed an ambitious scheme, and one of which chemists in particular would cordially approve. The damars of the Malay Peninsula, although apparently plentiful, had been comparatively little exploited; until 1922 they were collected by the natives under Government licence, and most of them found their way to middlemen, mostly Chinese at Singapore. There was no effort to extend the industry to parts of the country where there were large numbers of suitable trees, and an examination of the resins had led the Forestry Department to conclude that the best grades were being wasted by being blended with inferior products. In 1922, therefore, the Forestry Office had commenced work on damars. As a first step the various resins were examined, their botanical origin traced as far as possible, and the best method of tapping the trees without destroying their value as timber was studied. The next step was the selection of those resins which promised to be of the greatest economical value, and the preparation of them in such a way as to be acceptable to the varnish maker. As the result of this work a series of resins had been isolated.

The Market for Coumarone Resins

A Growing Industrial Demand

UNTIL quite recently synthetic resins have been regarded as generally consisting of the phenol formaldehyde type, but another class is now coming into general use in the shape of coumarone resins. These resins do not harden on heating and are chemically inert, of low acid value, and resistant to weathering. They are produced by polymerising certain constituents of solvent naphtha and provide a series of stable resins which retain their solubility on heating. Consequently they are very tractable, and can be used with special advantage in the paint and varnish industry as a substitute for copal or other gums and without the necessity of previous "running." Their high dielectric value has led to a heavy demand in the insulating varnish trade, and large quantities are being absorbed by the makers of cellulose lacquer and enamel, artificial leather, linoleum, sealing wax, etc. The softer qualities are employed extensively also in rubber compounding. New users generally seem to find coumarone preferable to rosin.

Until quite recently development has been hampered by the uncertainty of obtaining uniform deliveries, but it is now possible to obtain regular supplies conforming to a recognised specification regarding colour and melting point and ranging in quality from a water-white hard resin to a semi-liquid dark grade such as that which would be required for use in the printing ink trade. Rubber Industries, Ltd., of Downham Mills, Tottenham, London, who were probably the first suppliers of these resins to the English market, are finding an increasing demand for the grades they offer, and with the increased production which they have now arranged, they are able to meet all requirements.

Water Colours at Bouverie House

COMMENCING from Monday next, an exhibition of pictures—chiefly water colours—is to be held at Bouverie House, Fleet Street, London, the canvases shown being entirely the work of members of the timber trade. Altogether, about 70 pictures are being hung, and any of them will be available for purchase by visitors, who will be interested to know that in the majority of instances, 25 per cent. of the receipts will be handed over to charity. In the other cases, the whole of the price realised for a picture will be devoted to that cause. A cordial invitation is extended to readers to visit the exhibition, admission to which will be free, any time between 10 a.m. on Monday next and 4 p.m. on Friday, December 9.

Chemical Matters in Parliament

The Effect of Beet Sugar Upon Sugar Refineries

In answer to Mr. Johnston (House of Commons, November 21), Mr. Guinness said that he was aware of the contention that the British Sugar (Subsidy) Act had had an adverse effect on refiners of imported raw sugar. The possible effect of the subsidy scheme was fully considered, both before and during the passage of the Subsidy Act through Parliament, and it was only after considerable debate that the present Parliament decided the arrangements for subsidising the new British beet sugar industry for a period of 10 years on a diminishing scale. The Government, therefore, could not contemplate any change in the scheme sanctioned by Parliament under the British Sugar (Subsidy) Act, 1925, in accordance with which the industry had been and was being developed.

In answer to a further question, he stated that he did not think it would be appropriate for him to appoint a committee of inquiry, because, if the refiners were being injured, it was by no means only due to the beet sugar industry, and, if they were able to make a case for some alleviation of their position, it clearly could only be at the expense of the beet sugar industry, which has been started under a definite statutory contract.

Smoke Abatement

In replying to a question by Mr. Robert Wilson (House of Commons, November 24), Sir K. Wood said that the Smoke Abatement Act came into force only on July 1 last. It might be said that byelaws as to the emission of black smoke had been approved for a number of authorities. Some regional advisory committees had been set up. A draft Order extending the Alkali Acts had been prepared and considered with representative bodies and the statutory inquiry would be held next month.

Tetra-Ethyl Lead

Sir W. Joynson-Hicks, in replying to Mr. Hardie (House of Commons, November 24), stated that one firm in this country had lately commenced the blending of tetra-ethyl lead with petrol on a commercial scale. The Factory Department had been kept informed and was satisfied that adequate precautions were being taken for the protection of the workers concerned in the process. He was advised that there was not likely to be any danger from the handling of the spirit after blending. The whole matter would be carefully watched.

Restriction on Dye Imports into Australia

WITH the object of bringing the Commonwealth restrictions on the importation of dyes into line with the restrictions imposed in Great Britain, the proclamation prohibiting the introduction of dyes other than those of British origin, except with the consent of the Minister for Trade and Customs, has been repealed, and a new proclamation issued prohibiting the importation into the Commonwealth of all synthetic organic dyestuffs, colours and colouring matters, and all organic intermediates used in the manufacture of dyestuffs or colouring matters, other than those of British origin, except with the consent of the Minister.

Acid-Resisting Pumps for Chemical Industry

IN a recent paragraph, "Acid Resisting Pumps for Chemical Industry," it was stated that Haughton's Metallic Packing Co., Ltd., supply a high-lift acid pump, complete with motor drive, made in Tantiron. This is, of course, incorrect, the metal of which the pump is constructed being "Ironac," the firm's well-known acid-resisting iron.

Appointments Vacant

Senior Lecturer in the Department of Pure and Applied Science, Loughborough College. Good Honours degree in chemistry essential. The Registrar. December 1.

A Biochemical Research Assistant (Woman) at the Low Temperature Research Station, Downing Street, Cambridge. The Superintendent. December 10.

A Junior Research Metallurgist for the Mond Nickel Co., Ltd., The Secretary, Research and Development Department, the Mond Nickel Co., Ltd., Victoria Station House, London, S.W.1.

From Week to Week

MESSRS. W. L. H. ROBERTS, R. M. COOK, AND A. C. VINCENT have resigned from the board of the Holborough Cement Co., Ltd.

RECENT WILLS INCLUDE Mr. Robert George Murray, of Gorton, Manchester, chemical manufacturer, £10,020 (net personalty, £9,021).

LORD ASHFIELD, a director of I. C. I. and of the London Underground Group, has been indisposed, but is now reported to be much better.

MR. T. TERTIUS AIKMAN, head of Aikman (London), Ltd., has joined the boards of the Angela Nitrate Co., Ltd., and of the Santa Catalina Nitrate Co., Ltd.

EDIBLE GELATINE has been declared by the Ministry of Agriculture and Fisheries not to be a foodstuff within the meaning of Section 10 of the Merchandise Marks Act, 1926.

SOUTHALL BROTHERS AND BARCLAY, LTD., and Cuxson Gerrard and Co., Ltd., have contributed 50 guineas and £50 respectively towards the cost of equipping the department of pharmacy at the Birmingham Central Technical College.

THE CHEMICAL WORKS of May and Baker, Ltd., were threatened early on Tuesday morning when a fire broke out in a neighbouring grain mill. The firemen were unable to check the fire and directed their efforts to saving the chemical works.

ARRANGEMENTS ARE WELL UNDER WAY for the meeting at Glasgow in September next of the British Association. The meeting has been fixed from September 5 to 12. The Court and Senate of the University of Glasgow has placed at the disposal of the Association the buildings at Gilmore Hill.

SIR WILLIAM ORPEN, whose portrait of the late Sir John Benn was exhibited at the Royal Academy of 1917, has accepted a commission to paint the portrait of Sir Ernest Benn, for presentation to him by the shareholders and staff of Benn Brothers, Ltd., on his silver wedding on January 3 next.

THE SOCIETY OF GLASS TECHNOLOGY is organising the formation of a joint committee of the glass and firebrick industries, so that there may be more ready and intimate discussion of the points which arise in the making and use of the fireclay pots which are a necessary part of glass-works equipment.

ON THE INITIATIVE OF KING ALBERT OF BELGIUM and a number of industrialists and financiers, a movement has begun for the creation in Belgium of a permanent museum and laboratory for scientific research, which it is proposed to develop into a centre of study, where all nations will be invited to exhibit in 1930 the best specimens of scientific equipment.

AT THE ANNUAL MEETING OF THE IRISH FREE STATE Section of the Institute of Chemistry, Professor W. E. Adeney was nominated to represent the Section at the Jubilee celebrations in London. The following committee was elected: Professor W. E. Adeney, Dr. A. J. J. Leonard, Dr. J. H. Millar, Mr. A. H. O'Farrelly, Mr. J. W. Parkes, and Professor S. Young.

THE CHANDLER CHEMICAL MUSEUM, of Columbia University, established in honour of the late Charles Frederick Chandler, one of the founders of the American Chemical Society, and a pioneer in industrial chemistry, has just received the death mask, a cast of the hands, the photographic apparatus, and two likenesses of Karl Klietsch, of Vienna, inventor of the photogravure and rotogravure processes.

THE ANNUAL GENERAL MEETING of the British Cast Iron Research Association was held in London on Wednesday. Major-General Sir P. A. M. Nash was elected president for the forthcoming year in succession to Sir John Dewrance. Messrs. T. Donaldson, A. W. Steven, and W. T. McLellan were elected vice-presidents, and Sir William Bird and Mr. T. V. Miles re-elected vice-presidents. Mr. H. B. Weeks, chairman of the council, in his address, said that during the six years in which it had been in existence the Association had spent over £40,000 in research work.

UNIVERSITY NEWS.—*Cambridge:* Mr. C. Rimington, of Emmanuel College, has been re-elected to the Benn W. Levy research studentship in biochemistry.—*London:* J. Lyons and Co., Ltd., have contributed 250 guineas towards the establishment of the proposed chair of dietetics. The title of Professor of Chemistry in the University has been conferred on Dr. J. F. Spencer, F.I.C., in respect of the post held by him at Bedford College.—*Oxford:* The examiners have reported to the Vice-Chancellor that they have elected J. St. L. Philpot, Brackenbury Scholar of Balliol, to the Gibbs Scholarship in Chemistry.

THE SECRETARY FOR MINES has appointed the following to be a committee to report to the Safety in Mines Research Board from time to time on, and to superintend research required for, the improvement of mine rescue apparatus and equipment: Mr. R. Clive (chairman), Mr. R. L. Allott, Mr. G. L. Brown, Dr. J. S. Haldane, Mr. W. E. T. Hartley, Mr. P. S. Hay, Professor J. A. S. Ritson, Mr. J. H. Thorne, Dr. R. V. Wheeler, and a representative of the Chemical Warfare Research Department. The secretary of the committee is Mr. E. A. Shearing, of the Mines Department, to whom all communications on the subject should be addressed.

SIR MAX MUSPRATT left Liverpool for Ceylon on the steamer *Cheshire* on November 18.

THE NATIONAL PHYSICAL LABORATORY, Teddington, was broken into early on Saturday morning and £60 was taken from a safe.

AT A MEETING OF THE BRISTOL SECTION of the Society of Chemical Industry on Thursday, Dr. C. H. Lander spoke on "Low-Temperature Carbonisation."

DR. F. H. MCDOWALL, senior lecturer in organic chemistry at London University, has been appointed dairy research chemist to the Massey Memorial Agricultural College, Palmerston North, N.Z.

W. J. BUSH AND CO., LTD., and the Methylating Co., Ltd., announce that they have merged their interests in the manufacture of solvents and plasticisers used in the cellulose lacquer industry.

THE SCIENTIFIC AND INDUSTRIAL RESEARCH COUNCIL of Alberta has issued its seventh annual report, covering work performed in 1926. The research work included a chemical survey and investigation into the briquetting of coals.

MAKHOUNINE FUEL, a petrol substitute which is said to be manufactured from coal, was discussed recently during a meeting of the French Chamber. It was suggested that its use should be encouraged, in order to cut down imports of liquid fuel.

WITH MR. CLEMENT DAVIES, K.C., in the chair, the inaugural address to the recently-established Montgomeryshire Society in London was delivered by Mr. F. E. Hamer (THE CHEMICAL AGE) at the Hotel Somerset on Thursday, November 24.

DR. W. ROSENHAIN, superintendent of the department of metallurgy and metallurgical chemistry at the National Physical Laboratory, lectured on Tuesday, November 22, to the Birmingham and Midland Institutes' Scientific Society on "Solids, Liquids, and Gases."

THE TECHNICAL AND SALES OFFICES of the British Rotary Filter Co., Ltd., were transferred to Preston on Thursday. All communications should be addressed to The British Rotary Filter Co., Ltd., Grimshaw Street, Preston, Lancs. Telegrams, Rotaryfilt, Preston; Telephone: Preston, 907.

Techno-Chemica is the name of a new journal which is being published in Finland, of which the first number has just appeared. It will deal with industrial chemistry, pure chemistry, pharmacy, etc., and 10 numbers will be published annually. The publishers are: Ilmarinen Oy, Fredrikstreet 41, Helsinki, Finland.

A LECTURE ON "Low Temperature Carbonisation" will be given by Mr. H. P. Bird, F.I.C. at the Mechanics' Institute, Bradford, on December 14, under the auspices of the Bradford Sections of the Society of Chemical Industry, the Society of Dyers and Colourists, and several other Bradford societies. Sir Henry Whitehead will preside.

TO DEMONSTRATE THE ROLE OF RUBBER in modern commerce and industry, an exhibition is being arranged by the Imperial Institute, South Kensington, in collaboration with the Rubber Growers' Association. On and after December 3 the exhibition will be open from 10 to 5 daily, and from 2.30 to 6 on Sundays until December 31.

SALES OF NITRATE OF SODA reported by the Nitrate Producers' Association for the fortnight ended November 15 last amounted to 43,593 tons for delivery up to June, 1928, while a total of 34,951 tons was disposed of for shipment in the period July–December, 1928. The total sales reported since the introduction of free selling on April 14, state the Anglo-South American Bank, are now 2,462,082 tons.

AN AGREEMENT between German and French manufacturers was signed on Wednesday on the question of dyestuffs. The exact terms are not known, but are believed to be very favourable to France, since the estimated orders for 1928 have been taken into consideration. In addition to arrangements as to markets and production quotas, it is believed that a price-fixing scheme has been agreed upon, though this is denied by the parties interested.

CONVENED BY THE HOME OFFICE, represented by Sir Gerald Bellhouse (Chief Inspector of Factories), a conference was held last week-end at Cardiff between the South Wales patent fuel manufacturers and the Transport and General Workers' Union to review the problem of pitch cancer in the industry. After discussion it was decided to report to the membership the vital necessity of the men's co-operation, after which further conferences will be held.

GERMAN IMPORTS OF CELLULOSE continue to increase and exports are declining. Exports to Great Britain show a slight increase, which is explained by the interest of the English paper industry in German cellulose works. The total German imports last year amounted to 52,000 tons, but in the first nine months of this year they exceeded 85,000 tons. Exports to England in the first nine months this year have been 39,000 tons, against 45,000 in the whole of 1926.

Obituary

MR. SAMUEL WALTER WOOLLEY, formerly editor of *The Chemist and Druggist*, aged 62.

MR. PERCIVAL WORTHING, works secretary of the Normanton works of the International Combustion Engineering Co., Ltd.

References to Current Literature

British

GENERAL.—The phytosterol acetate test and the phytosterol of sunflower seed oil. J. Allan and C. W. Moore. *J.S.C.I.* November 18, pp. 433–434T.

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Gasoline, by pressure cracking of Canadian shale oils and bitumens. R. E. Gilmour. Canadian *Chem. and Met. Eng.*, November, 1927, pp. 289–291.

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GENERAL.—Origin and decomposition of carbon disulphide in gas-making. W. J. Huff and J. C. Holtz. *Ind. Eng. Chem.*, November 1, pp. 1268–1269.

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INORGANIC.—Hydrogen peroxide formation photosensitised by mercury vapour. A. L. Marshall. *J. Amer. Chem. Soc.*, November 1, pp. 2763–2772.

ORGANIC.—Piperidine derivatives. IV. Substituted piperidine-alkyl benzoates and *p*-aminobenzoates. S. M. McElvain. V. The preparation and reduction of certain phenyl substituted 3-carbethoxy-4-piperidones. 1-Cyclohexyl- and 1-phenylethyl-3-carbethoxy-4-piperidyl-p-aminobenzoates. J. R. Thayer and S. M. McElvain. *J. Amer. Chem. Soc.*, November, pp. 2835–2840, 2862–2869. Deals with the synthesis of these compounds and their pharmacological (local anæsthetic) properties.

Purification of abietic acid from rosin and preparation of some of its derivatives. C. C. Kesler, W. A. Lowy, and W. F. Faragher. *J. Amer. Chem. Soc.*, November, pp. 2898–2903.

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The simultaneous catalytic oxidation of sodium arsenite and sodium sulphate by oxygen. S. I. Vles. *Rec. Trav. Chimiques Pays-Bas*, November, pp. 743–753 (in English).

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ORGANIC.—Oxyquinine and peroxquinine—the products obtained by action of hydrogen peroxide on quinine. M. Frèrejacque. *Comptes rend.*, November 14, pp. 1052–1055.

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Patent Literature

The following information is prepared from published Patent Specifications and from the Illustrated Official Journal (Patents) by permission of the Controller to H.M. Stationery Office. Printed copies of full Patent Specifications accepted may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at 1s. each.

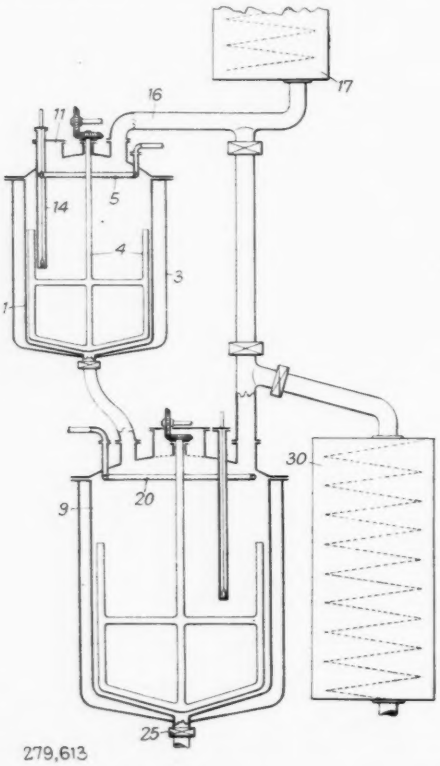
Abstracts of Complete Specifications

278,735. CELLULOSE ACETATE SOLUTIONS AND PLASTICS, PRODUCTION OF. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, April 24, 1925. Addition to 251,303. (See THE CHEMICAL AGE, Vol. XV, p. 59.)

Cellulose nitrate solutions or plastics have been prepared with esters of alkyl ethers of ethylene, propylene, and butylene glycol. It is now found that these esters are also suitable for the production of solutions and plastics from cellulose acetate. The esters are also solvents for many natural and artificial resins, colours, and oils, which may be added to the cellulose acetate. An example is given of the treatment of cellulose acetate with the acetate of ethylene-glycol monomethyl-ether and benzene.

279,613. ACID SLUDGE OR ACID RESIN OBTAINED FROM THE REFINING OF MINERAL OILS, TREATMENT OF. J. Jubb, 68, High Street, Bognor, Sussex. From J. Pickering, Hagenan, Alsace, France. Application date, October 4, 1926.

In the refining of mineral oils with sulphuric acid or oleum, an acid sludge is obtained which may contain 50 per cent. of sulphuric acid partly combined and partly free. The object



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is to separate the sulphuric acid, leaving a neutral sludge which can be used in the production of varnishes and resinous mixtures, pitch and similar materials, and rubber substitutes. The sludge is stirred and heated to a temperature below the boiling point of an organic solvent such as acetone which is capable of mixing with water. The solvent is then sprayed into the sludge to dissolve it. The mixture is then treated with water or an aqueous solution of sodium chloride or sodium carbonate in which the sludge is not directly soluble, to obtain a predetermined concentration of sulphuric acid. The aqueous solution removes the acid and also serves for the partial recovery of the organic solvent. The liquid may be used for washing further sludge so that it is enriched with solvent, and may be used for dissolving fresh charges of acid sludge.

A cast iron tank 1 internally enamelled or lead-lined is provided with a steam jacket 3 and a stirring device 4. The acid sludge is supplied through an opening 11 into which a thermometer 14 is fitted, and the solvent is introduced through the sprayer 5. A reflux cooler 17 is connected to the tank by the pipe 16. The tank is heated by the steam jacket to a temperature of 5° C. below the boiling point of the solvent. When the sludge is dissolved it is run through a pipe 8 into a similar tank 9 heated to a temperature below the boiling point of the solvent, and treated with water from the sprayer 20. After the requisite amount of water is added, the temperature is raised slightly above the boiling point of the solvent, and the volatilised solvent is allowed to pass into the condenser 30. The acid is withdrawn through the valve 25 and treated for the recovery of the remaining solvent. The stirring mechanism is then restarted and the temperature raised 5°–15° C. above the boiling point of the solvent and a solution of sodium chloride or sodium carbonate is then introduced through the sprayer. The temperature is raised to about 80° C., and a further portion of the solvent is removed by means of the washing liquid. The sludge is then heated to 125° C. to recover any remaining solvent. The recovered solvent and washing water are used again.

279,530. HYDROCYANIC ACID, MANUFACTURE OF. J. Y. Johnson, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, June 26, 1926.

In the catalytic decomposition of formamide, hydrocyanic acid is obtained, but an undesirable reaction may also occur resulting in the formation of carbon monoxide and ammonia. It is now found that this secondary reaction can be reduced to negligible proportions by decomposing formamide in the absence of other gases by means of dehydrating catalysts such as natural or artificial zeolites, calcium chloride, or alkali metal carbonate. It is only necessary to pass the formamide once over the catalyst. The acid may be obtained from the reaction mixture by removing the water by means of fractional cooling, or the acid may be absorbed by bases. Thus formamide vapour may be passed through a pipe containing soda ash heated to 400° C. Some of the hydrocyanic acid reacts with sodium carbonate forming sodium cyanide, and the remainder is obtained in a free state.

279,710. SEPARATING PHOSPHORUS FROM PHOSPHORUS-CONTAINING GASES, PROCESS FOR. A. L. Mond, London. From I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. Application date, April 11, 1927.

In the production of phosphorus from phosphates, silicic acid, and carbon in an electric furnace, a gas is obtained consisting essentially of phosphorus vapour and carbon monoxide. When the gas is cooled, the phosphorus separates out in the form of a fog which deposits slowly and does not coalesce into larger drops. This necessitates large cooling surfaces for the condensers. It is now found that a more rapid condensation of the fog can be obtained by projecting into it drops of liquid by means of centrifugal washers, intensive mixers, and the like. The deposition can be effected with water, aqueous solutions such as acids, organic liquids, or liquid phosphorus. The gases can thus be rapidly freed from their phosphorus contents except for the small proportion corresponding to the vapour tension of phosphorus. Two or more groups of washers are preferably employed, one operating at a temperature slightly above the melting point of phosphorus, and the second operating at as low a temperature as possible. The phosphorus collects in molten form below the first washing liquor, and can be easily tapped off. The small remaining amount of phosphorus is obtained in the second washer as a suspension in water, from which it may be separated by heating above the melting point of phosphorus.

279,745. PRIMARY-PROPYL-ESTER OF 2-PHENYLQUINOLINE-4-CARBOXYLIC ACID, MANUFACTURE OF. A. J. Stephens, London. From J. A. von Wulfing, 231, Friedrichstrasse, Berlin. Application date, June 17, 1927.

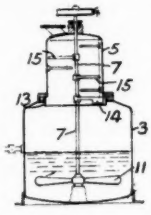
2-phenylquinoline-4-carboxylic acid and the methyl and ethyl esters have been used for anti-arthritic and leucocytotropic purposes, but it is now found that the primary propyl ester of 2-phenylquinoline 4-carboxylic acid is more effective for this purpose. It may be prepared by heating a mixture of 2-phenylquinoline-4-carboxylic acid, propyl alcohol and sulphuric acid in a reflux apparatus until the yellow residue is dissolved. The ester is then dissolved in cold water and the surplus of primary propyl alcohol removed by steam distillation. The ester is neutralised by sodium carbonate and crystallised out. Alternatively, the propyl ester can be obtained by treating a solution or suspension of 2-phenylquinoline-4-carboxylic acid in primary propyl alcohol with gaseous hydrochloric acid.

NOTE.—Abstracts of the following specifications which are now accepted, appeared in THE CHEMICAL AGE when they became open to inspection under the International Convention :—251,303 (I.G. Farbenindustrie Akt.-Ges.), relating to nitro cellulose solutions and plastics, see Vol. XV, p. 59 ; 260,604 (I.G. Farbenindustrie Akt.-Ges.), relating to alkylnaphthalenes, see Vol. XVI, p. 49 ; 260,623 (Soc. of Chemical Industrie in Basle), relating to intermediate products for dyestuffs, see Vol. XVI, p. 50 ; 262,119 (I.G. Farbenindustrie Akt.-Ges.), relating to 1-diazo-anthraquinone-2-carboxylic acids, see Vol. XVI, p. 167 ; 263,153 (M. Naef and F. Firmenich), relating to mono-cyclic ketones having more than nine ring members, and their alkyl derivatives, see Vol. XVI, p. 217 ; 263,192 (Chemical Works, formerly Sandoz), relating to substantive dyestuffs of the stilbene series fast to akalies, see Vol. XVI, p. 217 ; 263,811 (Kohlswa Jernverks Aktiebolag), relating to manufacture of steel, see Vol. XVI, p. 23 (Metallurgical Section) ; 271,816 (Rutgerswerke Akt.-Ges.), relating to fluorides containing silicic acid, see Vol. XVII, p. 115 ; 275,609 (I.G. Farbenindustrie Akt.-Ges.), relating to triarylmethane dyestuffs, see Vol. XVII, p. 331.

International Specifications not yet Accepted

278,304. CARBON DIOXIDE. B. Lundin, 8, Katarina Vastra Kyrkogata, Stockholm. International Convention date, September 28, 1926.

Solid sodium bicarbonate is added to a solution of sodium



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bisulphate to obtain carbon dioxide. The bicarbonate is supplied from a chamber 5 to a chamber 3 containing bisulphate. A rotary shaft 7 carries agitators, 11, 15, and the bicarbonate is forced by scrapers 14 through openings 13 into the chamber 3. The gas passes through a washer, and pump to a reservoir, and the pump is operated to withdraw dissolved carbon dioxide when the pressure falls. The solution used is of such strength that a solution of sodium sulphate saturated at 33° C. is obtained.

278,324. ACETALDEHYDE. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, September 28, 1926.

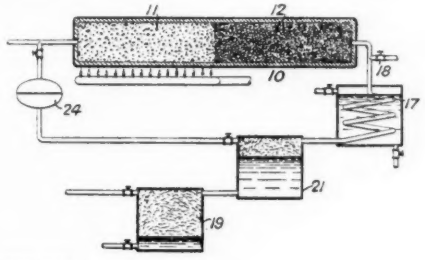
Acetylene is treated under pressure with acid solutions containing mercury salts, to obtain acetaldehyde. A gas containing acetylene obtained by the decomposition of saturated hydrocarbons, *e.g.*, methane, by electric or catalytic treatment may be used, and may be forced through microporous glass plates under 3 atmospheres pressure into a solution of mercury oxide in sulphuric acid of 20 per cent. strength at 80° C. The acetaldehyde is extracted with water before releasing the pressure.

278,325. PERYLENE DYESTUFFS. F. Bensa, 25, Piazza Fontane Marose, Genoa, Italy. International Convention date, October 2, 1926.

A metal cyanide is heated in the presence of pyridine or quinoline with methyl or ethyl halogen perylene ketones, with or without pressure. Diacetyl-dichlorperylene is obtained by adding acetyl chloride to a mixture of anhydrous aluminium chloride and dichlorperylene in carbon bisulphide, and dipropionyldichlorperylene is similarly obtained from propionyl chloride. Either of these may be treated with copper cyanide and the copper removed with ammonia, and the pure dyestuff obtained by forming a vat and reoxidising. Red-violet shades are obtained on cotton.

278,353. METHYL ETHER. Delco-Light Co., Dayton, Ohio, U.S.A. (Assignees of F. R. Bichowsky, 2904, P. St., Washington, U.S.A.) International Convention date, September 28, 1926.

A mixture of carbon monoxide and hydrogen is passed at high temperature and pressure over a hydrogenation catalyst



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and then over a dehydration catalyst, or over a mixture of the two, or alternatively, methyl alcohol is passed over a dehydration catalyst to obtain methyl ether. The hydrogenation catalyst must be one which does not favour the production of methane, *e.g.*, zinc oxide and reduced copper or chromium salts. Suitable dehydration catalysts are alumina obtained by partly dehydrating aluminium hydroxide at 300° C., partly dehydrated titanium hydroxide, thorium hydroxide, and silica gel. The hydrogenation is effected at 500° C. and more than 125 atmospheres pressure, and the dehydration at 300° C. and more than 25 atmospheres pressure.

A mixture of carbon monoxide 2 parts and hydrogen 1 part at a pressure of 150 atmospheres is passed through a chamber 10 lined internally with inert material, and containing a hydrogenation catalyst 11 and dehydration catalyst 12. The portion 11 only is heated, and the construction is such that the pressure falls to 25 atmospheres at the outlet. A solution of methyl ether in water condenses in a coil 17 and is collected in a high-pressure tank 21 from which it passes to a low-pressure tank 19, where ether is separated by reducing the pressure. Gases are drawn off by the pump 24 and returned to the reaction chamber.

278,370. TREATING ARGILLACEOUS MATERIALS. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, September 29, 1926.

Clay, kaolin, or bauxite is treated with hydrochloric acid so that the material is kept covered, and the inflow and outflow of acid are so regulated that a temperature of 105° to 120° C. is attained in the reaction zone by the heat of the reaction, the temperature increasing downwards. A deep column is employed to obtain this temperature, and the aluminium is fully extracted by one passage of the acid.

278,390. CONDENSATION PRODUCTS OF ALCOHOLS AND KETONES WITH UREA, ETC. I.G. Farbenindustrie Akt.-Ges., Frankfort-on-Main, Germany. International Convention date, October 4, 1926.

Urea or a derivative is heated with excess of an alcohol or a ketone, with or without a catalyst. A urethane is first obtained, and this condenses with an excess of the alcohol. The products are softening agents for cellulose esters and ethers, or substitutes for resins. Examples are given of the condensation of urea with benzyl alcohol or butylene glycol, with glycerin as catalyst ; urea with ethyl alcohol, acetophenone, or the cyclic acetal from glycerin and acetaldehyde ; acetylurea with diacetin ; thiourea with butylene glycol ; urethane with glycerin.

LATEST NOTIFICATIONS.

280,846. Manufacture and production of vat dyestuffs. I.G. Farbenindustrie Akt.-Ges. November 18, 1926.

280,873. Photographic developer. I.G. Farbenindustrie Akt.-Ges. November 19, 1926.

280,877. Process for the separation of mono- and dialkyl derivatives of aromatic amines. Silesia, Verein Chemischer Fabriken. November 19, 1926.

280,885. Recovering acetylene in a concentrated form from gaseous mixtures which contain it. I.G. Farbenindustrie Akt.-Ges. November 16, 1926.

280,886. Manufacture and production of vat dyestuffs. I.G. Farbenindustrie Akt.-Ges. November 18, 1926.

280,922. Process of treating cellulose. I.G. Farbenindustrie Akt.-Ges. November 22, 1926.

280,924. Process for the manufacture of thymol, its isomers or homologues, and their hydrogenation products. Schering-Kahlbaum Akt.-Ges. November 16, 1926.

280,939. Manufacture of catalytic gels. Silica Gel Corporation. November 19, 1926.

280,945. Manufacture of stable diazo-compounds. Soc. of Chemical Industry in Basle. November 18, 1926.

280,947. Process of removing sulphur compounds from gas mixtures. Silica Gel Corporation. November 19, 1926.

280,956. Process for the manufacture of thymol or its isomers and their homologues and of their hydrogenation products. Schering-Kahlbaum Akt.-Ges. November 22, 1926.

280,969. Process for the purification of lactic acid. Klapproth, W. November 22, 1926.

Specifications Accepted with Date of Application

256,638. Sulphur, Manufacture of. C. Still. August 6, 1925.

256,972 and 280,447. Mixed fertiliser, Manufacture and production of. I.G. Farbenindustrie Akt.-Ges. August 14, 1925; and August 11, 1926. 280,447 addition to 256,972.

259,608. Derivatives of benzanthrone which contain sulphur, Manufacture of. I.G. Farbenindustrie Akt.-Ges. October 10, 1925.

260,969. Carbon disulphide from its elements, Process for the production of. I.G. Farbenindustrie Akt.-Ges. November 3, 1925. Addition to 174,040.

262,392. Chlorinating roasting of burnt ore, Process for. H. Stephan. December 4, 1925.

263,780. Readily soluble salts of hydrofluosilicic acid, Process for the manufacture of. W. Möller and W. Kreth. December 23, 1925.

268,726. Purification of hydrocarbons and the like by liquid sulphur dioxide. Allgemeine Ges. für Chemische Industrie. March 30, 1926.

268,790. Concentrated potassium solutions from distillers' mash, Process for obtaining. R. Goldschmidt (trading as R. Goldschmidt (firm of)). March 30, 1926.

280,262. Absorbent Materials, Manufacture of. British Dyestuffs Corporation, Ltd., J. Baddiley, and E. Chapman. July 15, 1926.

280,291. Hollow bodies from quartz and similar materials, Process and apparatus for. K. Carpmael and K. S. Carpmael. (*I.G. Farbenindustrie Akt.-Ges.*) August 12, 1926.

280,373. Aromatic acid anhydrides. British Dyestuffs Corporation, Ltd. J. B. Payman and N. Hall. November 29, 1926.

280,435. White pigment, Manufacture of. B. Laporte, Ltd., H. E. Alcock, and I. E. Weber. April 27, 1927.

280,436. Greenish Yellow azo-dyestuff, Manufacture of. O. Y. Imray. (*I.G. Farbenindustrie Akt.-Ges.*) May 5, 1927.

Applications for Patents

Arnold, C., and Standard Oil Development Co. Manufacture of esters. 31,246. November 21.

Beckett, E. G., Scottish Dyes, Ltd., Thomas, J., and Woodcock, W. G. Manufacture of amino-halogen-anthraquinones. 31,254. November 21.

Carpmael, A., and I.G. Farbenindustrie Akt.-Ges. Manufacture of copper ammine complex azo compounds. 31,230. November 21.

Carpmael, A., and I.G. Farbenindustrie Akt.-Ges. Manufacture of synthetic resins. 31,395. November 22.

Carpmael, A., and I.G. Farbenindustrie Akt.-Ges. Manufacture of ortho-aminoarylmercaptans. 31,540. November 23.

Carpmael, K. (legal representative of Carpmael, W.), Carpmael, K. S. (legal representative of Carpmael, W.), Carpmael, W. (I.G. Farbenindustrie Akt.-Ges.). Manufacture of hydrogenated aromatic amino compounds. 31,394. November 22.

Hansen, F. J. M. Manufacture of liquid hydrocarbons. 31,913. November 26.

I.G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Production of vat dyestuffs. 31,218. November 21.

I.G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Production of vitamin D. 31,219. November 21.

I.G. Farbenindustrie Akt.-Ges. and Johnson J. Y. Manufacture of copper ammine complex azo compounds. 31,230. November 21.

I.G. Farbenindustrie Akt.-Ges. and Imray, O. Y. Manufacture of nitro-2 : 3-dichloro-1 : 4-naphthoquinone. 31,369. November 22.

I.G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Means for obtaining crystals in fertiliser salts. 31,639. November 24.

I.G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Production of electrodes for electric accumulators. 31,773. November 25.

I.G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Printing, etc., process. 31,774. November 25.

I.G. Farbenindustrie Akt.-Ges. Manufacture of phenylthioglycolic acids, etc. 31,393. November 22. (Germany, November 24, 1926.)

I.G. Farbenindustrie Akt.-Ges. Production of aromatic hydrocarbons. 31,501. November 23. (Germany, November 24, 1926.)

I.G. Farbenindustrie Akt.-Ges. Apparatus for delivering measured quantities of powdered, etc., substances. 31,651. November 24. (Germany, December 1, 1926.)

I.G. Farbenindustrie Akt.-Ges. Preparing surfaces for reception of cellulose lacquers. 31,655. November 24. (Germany, November 24, 1926.)

Imperial Chemical Industries, Ltd. Treating greasy fibrous materials. 31,431. November 23.

Imperial Chemical Industries, Ltd. Prevention of rancidity in vegetable oils, etc. 31,520. November 23.

Imperial Chemical Industries, Ltd. Electric blasting-fuses. 31,696. November 24.

Klapproth, W. Process for purification of lactic acid. 31,342. November 22. (Germany, November 22, 1926.)

Krupp Grusonwerk Akt.-Ges., F. Treatment of sulphide ores. 31,664. November 24.

Lister et Cie, R., and Marks, E. C. R. Manufacture of emulsions, etc. 31,908. November 26.

Matter, O. Explosive engines. 31,818. November 25.

Matter, O. Explosives. 31,819. November 25.

Matter, O. Manufacture of heavy metal azides. 31,820. November 25.

Morden, G. W. Manufacture of cellulose acetate. 31,786. November 25.

Norsk Hydro Elektrisk Kvælstofaktieselskab. Concentration of dilute nitric acid. 31,529. November 23. (Norway, December 6, 1926.)

Scharff, G. E. Prevention of rancidity in vegetable oils, etc. 31,520. November 23.

Selden Co. Catalytic oxidation of organic compounds. 31,605. November 24. (United States, November 24, 1926.)

The Vickers-Armstrong Amalgamation

MEETINGS of the share and debenture holders in Vickers, Ltd., and Sir W. G. Armstrong-Whitworth and Co., Ltd., were held on Monday to sanction proposals for the fusion of the two companies which in the case of Armstrongs involves drastic reduction of capital. The fusion will be only partial, certain assets of Vickers, including the Weybridge Works, Crayford Works, and the Metropolitan Carriage and Wagon and Finance Company, and some subsidiaries not being included in the sale. Under the scheme a new company with a capital of £21,000,000 will be formed. Vickers will transfer to the new company the works, plant, goodwill, trade marks, and patents of the businesses carried on at Sheffield, Barrow, Eskmeals, Erith, Dartford, Swanley, Eynsford, and St. Albans. Armstrongs are disposing of their works, etc., at Elswick, Ridsdale, and Openshaw, and the naval and Walker shipyards on the Tyne, while they retain, among other assets, the Scotswood works, Newcastle-on-Tyne, the Close works, Gateshead, and the extensive general engineering and commercial business. Armstrong's losses amount to about £11,000,000, of which 65 per cent. represented losses in investments and the remaining 35 per cent. an interim adjusted value and depreciation of the company's properties. The proposals for the fusion and rearrangement of capital were carried by large majorities at both the Vickers and Armstrong meetings.

Exemption of Chemicals from Key Industries Duty

THE Treasury have made an order under Section 10 (5) of the Finance Act, 1926, exempting the following articles from Key Industry duty from November 28, 1927, to December 31, 1928—Bromural (dormigene), eukodal, lithium carbonate, lithium hydroxide, nickel hydroxide, papaverine, R. potassium permanganate, quinine ethyl-carbonate, resorcine (resorcinol), and styracol (guaiacol cinnamate). The Treasury Order will be published shortly.

Weekly Prices of British Chemical Products

The prices and comments given below respecting British chemical products are based on direct information supplied by the British manufacturers concerned. Unless otherwise qualified, the figures quoted apply to fair quantities, net and naked at makers' works.

General Heavy Chemicals

ACID ACETIC, 40% TECH.—£19 per ton.

ACID BORIC, COMMERCIAL.—Crystal, £30 per ton; powder, £32 per ton; extra fine powder, £34 per ton.

ACID HYDROCHLORIC.—3s. 9d. to 6s. per carboy d/d, according to purity, strength, and locality.

ACID NITRIC, 80° Tw.—£21 10s. to £27 per ton, makers' works, according to district and quality.

ACID SULPHURIC.—Average National prices f.o.r. makers' works, with slight variations up and down owing to local considerations: 140° Tw., Crude Acid, 60s. per ton. 168° Tw., Arsenical, £5 10s. per ton. 168° Tw., Non-arsenical, £6 15s. per ton.

AMMONIA ALKALI.—£6 15s. per ton f.o.r. Special terms for contracts.

BISULPHITE OF LIME.—£7 10s. per ton, f.o.r. London, packages extra.

BLEACHING POWDER.—Spot, £9 10s. per ton d/d; Contract, £8 10s. per ton d/d, 4-ton lots.

BORAX, COMMERCIAL.—Crystals, £19 10s. to £20 per ton; granulated, £19 per ton; powder, £21 per ton. (Packed in 2-cwt. bags, carriage paid any station in Great Britain.)

CALCIUM CHLORIDE (SOLID).—£5 to £5 5s. per ton d/d carr. paid.

COPPER SULPHATE.—£25 to £25 10s. per ton.

METHYLATED SPIRIT 61 O.P.—Industrial, 2s. 5d. to 2s. 10d. per gall.; pyridinised industrial, 2s. 7d. to 3s. per gall.; mineralised, 3s. 6d. to 3s. 10d. per gall.; 64 O.P., 1d. extra in all cases; prices according to quantity.

NICKEL SULPHATE.—£38 per ton d/d.

NICKEL AMMONIA SULPHATE.—£38 per ton d/d.

POTASH CAUSTIC.—£30 to £33 per ton.

POTASSIUM BICHROMATE.—4½d. per lb.

POTASSIUM CHLORATE.—3¾d. per lb., ex wharf, London, in cwt. kegs.

SALAMMONIAC.—£45 to £50 per ton d/d. Chloride of ammonia £37 to £45 per ton, carr. paid.

SALT CAKE.—£3 15s. to £4 per ton d/d. In bulk.

SODA CAUSTIC, SOLID.—Spot lots delivered, £15 2s. 6d. to £18 per ton, according to strength; 20s. less for contracts.

SODA CRYSTALS.—£5 to £5 5s. per ton, ex railway depots or ports.

SODIUM ACETATE 97/98%.—£21 per ton.

SODIUM BICARBONATE.—£10 10s. per ton, carr. paid.

SODIUM BICHROMATE.—3½d. per lb.

SODIUM BISULPHITE POWDER, 60/62%.—£17 10s. per ton delivered for home market, 1-cwt. drums included; £15 10s. f.o.r. London.

SODIUM CHLORATE.—2¾d. per lb.

SODIUM NITRITE, 100% BASIS.—£27 per ton d/d.

SODIUM PHOSPHATE.—£14 per ton, f.o.b. London, casks free.

SODIUM SULPHATE (GLAUBER SALTS).—£3 12s. 6d. per ton.

SODIUM SULPHIDE CONC. SOLID, 60/65.—£13 5s. per ton d/d. Contract, £13. Carr. paid.

SODIUM SULPHIDE CRYSTALS.—Spot, £8 12s. 6d. per ton d/d. Contract, £8 10s. Carr. paid.

SODIUM SULPHITE, PEA CRYSTALS.—£14 per ton f.o.b. London, 1-cwt. kegs included.

Coal Tar Products

ACID CARBOLIC CRYSTALS.—7½d. to 8d. per lb. Crude 60's, 2s. 4d. to 2s. 5d. per gall.

ACID CRESYLIC 99/100.—2s. 11d. to 3s. per gall. 97/99.—2s. 4d. to 2s. 5½d. per gall. Pale, 95%, 2s. 3d. to 2s. 4d. per gall. Dark, 95%, 2s. 1d. to 2s. 2d.

ANTHRACENE.—A quality, 2½d. per unit. 40%, £5 per ton.

ANTHRACENE OIL, STRAINED.—8d. to 8½d. per gall. Unstrained, 7¾d. to 8d. per gall.

BENZOLE.—Crude 65's, 9¼d. to 10d. per gall., ex works in tank wagons. Standard Motor, 1s. 1½d. to 1s. 2½d. per gall., ex works in tank wagons. Pure, 1s. 5d. to 1s. 7d. per gall., ex works in tank wagons.

TOLUOLE.—90%, 1s. 4d. to 1s. 8d. per gall. Firm. Pure, 1s. 6d. to 2s. per gall.

XYLOL.—1s. 3d. to 1s. 10d. per gall. Pure, 1s. 9d. per gall.

CREOSOTE.—Cresylic, 20/24%, 10d. to 11d. per gall.; middle oil, 8d. to 9d. per gall. Heavy, 8¾d. to 9d. per gall. Standard specification, 7½d. to 7¾d. ex works. Salty, 7d. per gall. less 1½%.

NAPHTHA.—Crude, 9d. to 10d. per gall. Solvent 90/160, 9½d. to 10½d. per gall. Solvent 95/160, 1s. 3d. to 1s. 4d. per gall. Solvent 90/190, 8½d to 1s. 3d. per gall.

NAPHTHALENE CRUDE.—Drained Creosote Salts, £5 per ton. Whizzed or hot pressed, £8 per ton.

NAPHTHALENE.—Crystals, £13 to £13 10s. per ton. Quiet. Flaked, £14 to £15 per ton, according to districts.

PITCH.—Medium soft, 85s. to 90s. per ton, f.o.b., according to district. Market firm.

PYRIDINE.—90/140, 5s. 9d. to 6s. 6d. per gall. 90/180, 3s. 6d. to 5s. per gall. Heavy, 3s. to 3s. 6d. per gall.

Intermediates and Dyes

In the following list of Intermediates delivered prices include packages except where otherwise stated:

ACID AMIDONAPHTHOL DISULPHO (1-8-2-4).—10s. 9d. per lb.

ACID ANTHRANILIC.—6s. per lb. 100%.

ACID BENZOIC.—1s. 9d. per lb.

ACID GAMMA.—4s. 6d. per lb.

ACID H.—3s. per lb.

ACID NAPHTHIONIC.—1s. 6d. per lb.

ACID NEVILLE AND WINTHER.—4s. 9d. per lb.

ACID SULPHANILIC.—8½d. per lb.

ANILINE OIL.—8d. per lb. naked at works.

ANILINE SALTS.—8d. per lb. naked at works.

BENZALDEHYDE.—2s. 3d. per lb.

BENZIDINE BASE.—3s. 3d. per lb. 100% basis d/d.

BENZOIC ACID.—1s. 8½d. per lb.

o-CRESOL 29/31° C.—5½d. per lb.

m-CRESOL 98/100%.—2s. 7½d. per lb. Only limited inquiry.

p-CRESOL 32/34° C.—2s. 8½d. per lb. Only limited inquiry.

DICHLORANILINE.—1s. 10d. per lb.

DIMETHYLANILINE.—1s. 11d. per lb.

DINITROBENZENE.—8½d. per lb. naked at works. £75 per ton.

DINITROCHLORBENZENE.—£84 per ton d/d.

DINITROTOLUENE.—48/50° C. 8d. per lb. naked at works. 66/68° C. 9d. per lb. naked at works.

DIPHENYLAMINE.—2s. 10d. per lb. d/d.

a-NAPHTHOL.—2s. per lb. d/d.

B-NAPHTHOL.—10d. per lb. d/d.

a-NAPHTHYLAMINE.—1s. 3d. per lb.

B-NAPHTHYLAMINE.—3s. per lb.

o-NITRANILINE.—5s. 9d. per lb.

m-NITRANILINE.—3s. per lb. d/d.

p-NITRANILINE.—1s. 8d. per lb.

NITROBENZENE.—6d. per lb. naked at works.

NITRONAPHTHALENE.—1s. 3d. per lb.

R. SALT.—2s. 2d. per lb.

SODIUM NAPHTHIONATE.—1s. 8½d. per lb. 100% basis d/d.

o-TOLUIDINE.—8½d. per lb.

p-TOLUIDINE.—2s. per lb. naked at works.

m-XYLIDINE ACETATE.—2s. 11d. per lb. 100%.

N. W. Acid.—4s. 9d. per lb. 100%.

Wood Distillation Products

ACETATE OF LIME.—Brown, £10 5s. per ton. Good demand. Grey, £14 10s. to £15 per ton. Liquor, 9d. per gall.

CHARCOAL.—£6 to £9 per ton, according to grade and locality. Foreign competition severe.

IRON LIQUOR.—1s. 3d. per gall. 32° Tw. 1s. per gall. 24° Tw.

RED LIQUOR.—9d. to 10d. per gall.

WOOD CREOSOTE.—1s. 9d. per gall. Unrefined.

WOOD NAPHTHA, MISCIBLE.—3s. 11d. to 4s. 3d. per gall. Solvent, 4s. 3d. per gall.

WOOD TAR.—£4 to £5 per ton.

BROWN SUGAR OF LEAD.—£40 15s. per ton.

Rubber Chemicals

ANTIMONY SULPHIDE.—Golden, 6½d. to 1s. 5½d. per lb., according to quality; Crimson, 1s. 4d. to 1s. 6d. per lb., according to quality.

ARSENIC SULPHIDE, YELLOW.—1s. 9d. per lb.

BARYTES.—£3 10s. to £6 15s. per ton, according to quality.

CADMIUM SULPHIDE.—2s. 6d. to 2s. 9d. per lb.

CARBON BISULPHIDE.—£20 to £25 per ton, according to quantity.

CARBON BLACK.—5½d. per lb., ex wharf.

CARBON TETRACHLORIDE.—£45 to £50 per ton, according to quantity, drums extra.

CHROMIUM OXIDE, GREEN.—1s. 1d. per lb.

DIPHENYLGUANIDINE.—3s. 9d. per lb.

INDIARUBBER SUBSTITUTES, WHITE AND DARK.—5¾d. to 6¾d. per lb.

LAMP BLACK.—£35 per ton, barrels free.

LEAD HYPOSULPHITE.—9d. per lb.

LITHOPHONE, 30%.—£22 10s. per ton.

MINERAL RUBBER "RUBPRON."—£13 12s. 6d. per ton, f.o.r. London.

SULPHUR.—£9 to £11 per ton, according to quality.

SULPHUR CHLORIDE.—4d. to 7d. per lb., carboys extra.

SULPHUR PRECIP. B.P.—£47 10s. to £50 per ton.

THIOCARBAMIDE.—2s. 6d. to 2s. 9d. per lb., carriage paid.

THIOCARBANILIDE.—2s. 1d. to 2s. 3d. per lb.

VERMILION, PALE OR DEEP.—6s. to 6s. 3d. per lb.

ZINC SULPHIDE.—1s. per lb.

Pharmaceutical and Photographic Chemicals

ACID, ACETIC, PURE, 80%.—£39 per ton ex wharf London in glass containers.

ACID, ACETYL SALICYLIC.—2s. 3½d. to 2s. 4½d. per lb.

ACID, BENZOIC B.P.—2s. to 3s. 3d. per lb., according to quantity. Solely ex Gum, 1s. to 1s. 3d. per oz., according to quantity.

Acid, Boric B.P.—Crystal, 36s. to 39s. per cwt.; powder, 40s. to 43s. per cwt.; extra fine powder, 42s. per cwt., according to quantity. Carriage paid any station in Great Britain, in ton lots.
Acid, Camphoric.—19s. to 21s. per lb.
Acid, Citric.—1s. 6¾d. to 1s. 7d. per lb., less 5%.
Acid, Gallic.—2s. 8d. per lb. for pure crystal, in cwt. lots.
Acid, Pyrogallic, Crystals.—7s. 3d. per lb. Resublimed, 8s. 3d. per lb.
Acid, Salicylic, B.P. pulv.—1s. 4d. to 1s. 6d. per lb.; Technical.—11¾d. to 1s. per lb. Good demand.
Acid, Tannic B.P.—2s. 8d. to 2s. 10d. per lb.
Acid, Tartaric.—1s. 3¾d. per lb., less 5%.
Acetanilide.—1s. 6d. to 1s. 9d. per lb. for quantities.
Amidol.—7s. 6d. to 9s. per lb., d/d.
Amidopyrin.—8s. 6d. per lb.
Ammonium Benzoate.—3s. 3d. to 3s. 6d. per lb., according to quantity.
Ammonium Carbonate B.P.—£31 per ton. Powder, £39 per ton in 5 cwt. casks. Resublimated: 1s. per lb.
Atropine Sulphate.—9s. per oz.
Barbitone.—5s. 9d. to 6s. per lb.
Benzonaphthol.—3s. 3d. per lb. spot.
Bismuth Carbonate.—10s. 4d. to 10s. 7d. per lb.
Bismuth Citrate.—9s. 10d. to 10s. 1d. per lb.
Bismuth Salicylate.—8s. 10d. to 10s. 1d. per lb.
Bismuth Subnitrate.—8s. 4d. to 8s. 7d. per lb.
Bismuth Nitrate.—6s. 1d. to 6s. 4d. per lb.
Bismuth Oxide.—13s. 10d. to 14s. 1d. per lb.
Bismuth Subchloride.—13s. 10d. to 14s. 1d. per lb.
Bismuth Subgallate.—8s. 1d. to 8s. 4d. per lb. Extra and reduced prices for smaller and larger quantities respectively; Liquor Bismuthi et Ammon. Cit. B.P. in W. Qts. 1s. 1d. per lb.; 12 W. Qts. 1s. per lb.; 36 W. Qts. 11¼d. per lb.
Borax B.P.—Crystal, 25s. per cwt.; powder, 26s. per cwt. according to quantity. Carriage paid any station in Great Britain, in ton lots.
Bromides.—Potassium, 1s. 10½d. per lb.; sodium, 2s. 1d. per lb.; ammonium, 2s. 3d. per lb.; granulated, ¼d. per lb. less; all spot. Large quantities at lower rates.
Calcium Lactate.—1s. 2d. to 1s. 3d. per lb.
Camphor.—Refined flowers, 2s. 11d. to 3s. 1d. per lb., according to quantity; also special contract prices.
Chloral Hydrate.—3s. 2d. to 3s. 4d. per lb.
Chloroform.—2s. 3d. to 2s. 7½d. per lb., according to quantity.
Creosote Carbonate.—6s. per lb.
Ethers.—S.G. ·730—1s. 1½d. to 10½d., drums; other gravities at proportionate prices.
Formaldehyde.—£39 per ton, in barrels ex wharf.
Guaiacol Carbonate.—4s. 9d. to 5s. per lb.
Hexamine.—2s. 3d. to 2s. 6d. per lb.
Homatropine Hydrobromide.—30s. per oz.
Hydrastine Hydrochloride.—English make offered at 120s. per oz.
Hydrogen Peroxide (12 vols.).—1s. 4d. per gallon, f.o.r. makers' works, naked. Winchesters, 2s. 11d. per gal. B.P., 10 vols., 2s. 3d. per gal. In carboys. Winchesters, 2s. 11d. to 3s. 9d. per gal.; 20 vols., 4s. 3d. per gal.; Winchesters, 5s. per gal. Special prices for larger quantities.
Hydroquinone.—3s. 3d. to 3s. 6d. per lb., in cwt. lots.
Hypophosphites.—Calcium, 3s. 6d. per lb., for 28-lb. lots; potassium, 4s. 1d. per lb.; sodium, 4s. per lb.
Iron Ammonium Citrate.—B.P., 2s. 1d. to 2s. 4d. per lb. Green, 2s. 4d. to 2s. 9d. per lb. U.S.P., 2s. 2d. to 2s. 5d. per lb.
Iron Perchloride.—18s. to 20s. per cwt., according to quantity.
Magnesium Carbonate.—Light commercial, £31 per ton net.
Magnesium Oxide.—Light commercial, £62 10s. per ton, less 2½%; Heavy Commercial, £21 per ton, less 2½%; in quantity lower; Heavy Pure, 2s. to 2s. 3d. per lb., in 1 cwt. lots.
Menthol.—A.B.R. recrystallised B.P., 17s. 9d. per lb. net; Synthetic detached crystals, 10s. to 12s. 6d. per lb., according to quantity; Liquid (95%), 11s. 3d. per lb.
Mercurials B.P.—Up to 1 cwt. lots, Red Oxide, 7s. 6d. to 7s. 7d. per lb., levig., 7s. to 7s. 1d. per lb.; Corrosive Sublimate, Lump, 5s. 9d. to 5s. 10d. per lb., Powder, 5s. 2d. to 5s. 3d. per lb.; White Precipitate, Lump, 5s. 11d. to 6s. per lb., Powder, 6s. to 6s. 1d. per lb., Extra Fine, 6s. 1d. to 6s. 2d. per lb.; Calomel, 6s. 4d. to 6s. 5d. per lb.; Yellow Oxide, 6s. 10d. to 6s. 11d. per lb.; Persulph., B.P.C., 6s. 1d. to 6s. 2d. per lb.; Sulph. nig., 5s. 10d. to 5s. 11d. per lb. Special prices for larger quantities.
Methyl Salicylate.—1s. 9d. per lb.
Methyl Sulphonal.—8s. 9d. to 9s. per lb.
Metol.—9s. to 11s. 6d. per lb. British make.
Paraformaldehyde.—1s. 9d. per lb. for 100% powder.
Paraldehyde.—1s. 4d. per lb. Less in quantity.
Phenacetin.—2s. 6d. to 2s. 9d. per lb.
Phenazone.—4s. to 4s. 3d. per lb.
Phenolphthalein.—6s. 6d. to 6s. 9d. per lb.
Potassium Bitartrate 99/100% (Cream of Tartar).—98s. per cwt. less 2½%.
Potassium Citrate.—B.P.C., 1911: 1s. 8d. to 1s. 11d. per lb.; U.S.P.: 1s. 11d. to 2s. 2d. per lb.
Potassium Ferricyanide.—1s. 9d. per lb., in cwt. lots.
Potassium Iodide.—16s. 8d. to 17s. 2d. per lb. according to quantity.
Potassium Metabisulphite.—6d. per lb., 1-cwt. kegs included, f.o.r. London.
Potassium Permanganate.—B.P. crystals, 6½d. per lb., spot.
Quinine Sulphate.—1s. 8d. to 1s. 9d. per oz. bulk in 100 oz. tins.
Resorcin.—3s. 9d. to 4s. per lb., spot.
Saccharin.—55s. per lb.; in quantity lower.
Salol.—2s. 4d. per lb.
Sodium Benzoate, B.P.—1s. 8d. to 1s. 11d. per lb.
Sodium Citrate, B.P.C., 1911.—1s. 8d. to 1s. 11d. per lb., B.P.C., 1923—1s. 11d. to 2s. 1d. per lb. for 1-cwt. lots. U.S.P., 1s. 11d. to 2s. 2d. per lb., according to quantity.
Sodium Ferrocyanide.—4d. per lb., carriage paid.
Sodium Hyposulphite, Photographic.—£15 5s. per ton, d/d consignee's station in 1-cwt. kegs.
Sodium Nitroprusside.—16s. per lb.
Sodium Potassium Tartrate (Rochelle Salt).—90s. to 95s. per cwt. Crystals, 5s. per cwt. extra.
Sodium Salicylate.—Powder, 1s. 7d. to 1s. 9d. per lb. Crystal, 1s. 8d. to 1s. 10d. per lb.
Sodium Sulphide, pure recrystallised.—10d. to 1s. 2d. per lb.
Sodium Sulphite, anhydrous.—£27 10s. to £28 10s. per ton, according to quantity. Delivered U.K.
Sulphonal.—6s. 9d. to 7s. per lb.
Tartar Emetic, B.P.—Crystal or powder, 2s. 1d. to 2s. 2d. per lb.
Thymol.—Puriss., 10s. to 10s. 3d. per lb., according to quantity. Firmer. Natural, 14s. 3d. per lb.

Perfumery Chemicals

Acetophenone.—7s. per lb.
Aubepine (ex Anethol).—11s. per lb.
Amyl Acetate.—2s. per lb.
Amyl Butyrate.—5s. 3d. per lb.
Amyl Salicylate.—3s. per lb.
Anethol (M.P. 21/22° C.).—5s. 6d. per lb.
Benzyl Acetate from Chlorine-free Benzyl Alcohol.—2s.
Benzyl Alcohol free from Chlorine.—2s. per lb per lb.
Benzaldehyde free from Chlorine.—2s. 6d. per lb.
Benzyl Benzoate.—2s. 6d. per lb.
Cinnamic Aldehyde Natural.—16s. 6d. per lb.
Coumarin.—10s. per lb.
Citronellol.—13s. 9d. per lb.
Citral.—8s. 3d. per lb.
Ethyl Cinnamate.—6s. per lb.
Ethyl Phthalate.—3s. per lb.
Eugenol.—8s. 6d. per lb.
Geraniol (Palmarosa).—18s. 6d. per lb.
Geraniol.—6s. 6d. to 10s. per lb.
Heliotropine.—4s. 9d. per lb.
Iso Eugenol.—13s. 6d. per lb.
Linalool.—Ex Bois de Rose, 14s. per lb. Ex Shui Oil, 9s. 9d. per lb.
Linalyl Acetate.—Ex Bois de Rose, 17s. 6d. per lb. Ex Shui Oil, 13s. 9d. per lb.
Methyl Anthranilate.—8s. 6d. per lb.
Methyl Benzoate.—4s. per lb.
Musk Ketone.—35s. per lb.
Musk Xylol.—8s. per lb.
Nerolin.—4s. 6d. per lb.
Phenyl Ethyl Acetate.—12s. per lb.
Phenyl Ethyl Alcohol.—10s. 6d. per lb.
Rhodinol.—32s. 6d. per lb.
Safrol.—1s. 6d. per lb.
Terpineol.—1s. 8d. per lb.
Vanillin.—16s. 6d. per lb.

Essential Oils

Almond Oil.—Foreign S.P.A., 11s. per lb.
Anise Oil.—2s. 9d. per lb.
Bergamot Oil.—26s. per lb.
Bourbon Geranium Oil.—13s. 6d. per lb.
Camphor Oil.—9d. per lb
Cananga Oil, Java.—15s. 9d. per lb.
Cinnamon Oil Leaf.—6d. per oz.
Cassia Oil, 80/85%.—7s. 3d. per lb.
Citronella Oil.—Java, 1s. 10d. per lb, c.i.f. U.K. port for shipment over 1928. Ceylon, pure, 1s. 8d. per lb.
Clove Oil.—5s. per lb.
Eucalyptus Oil, Australian.—2s. 2d. per lb.
Lavender Oil.—Mont Blanc, 38/40%, Esters, 17s. per lb.
Lemon Oil.—8s. 6d. per lb.
Lemongrass Oil.—4s. 6d. per lb.
Orange Oil, Sweet.—11s. 3d. per lb.
Otto of Rose Oil.—Anatolian, 35s. per oz. Bulgarian, 75s. per oz.
Palma Rosa Oil.—10s. per lb.
Peppermint Oil.—Wayne County, 15s. 9d. per lb.; Japanese, 8s. per lb.
Petitgrain Oil.—7s. 9d. per lb.
Sandalwood Oil.—Mysore, 26s. 6d. per lb.; 90/95%, 16s. 6d. per lb.

London Chemical Market

The following notes on the London Chemical Market are specially supplied to* THE CHEMICAL AGE *by Messrs. R. W. Greeff & Co., Ltd., and Messrs. Chas. Page & Co., Ltd., and may be accepted as representing these firms' independent and impartial opinions.

London, December 1, 1927.

THE chemical market has continued active with a good volume of business passing. Prices are firm. Export trade has been a little brighter.

General Chemicals

ACETONE.—Price unchanged at £63 per ton with reductions for larger quantities.

ACID ACETIC is very firm, price unchanged at £37 to £38 per ton for 80%. Business good.

ACID CITRIC.—Unchanged.

ACID FORMIC continues in good demand, price very firm at £44 to £45 per ton.

ACID LACTIC.—Unchanged at £43 per ton.

ACID OXALIC remains firm and in good demand at £30 per ton.

ALUMINA SULPHATE is in good demand, price firm at £5 15s. per ton.

AMMONIUM CHLORIDE.—Unchanged at £19 per ton. Demand continues fair.

BARIUM CHLORIDE.—Unchanged at £8 10s. to £9 per ton.

COPPER SULPHATE.—Unchanged.

EPSOM SALTS.—Unchanged.

FORMALDEHYDE is in good demand and price remains unchanged at £41 10s. per ton.

LEAD ACETATE.—Unchanged at £43 10s. for white and 10s. per ton less for brown.

LIME ACETATE.—Unchanged.

METHYL ACETONE remains active at £54 to £55 per ton.

POTASSIUM CHLORATE is very firm and still in short supply.

POTASSIUM PERMANGANATE.—The K.I.D. has been removed from this article and the price is about 5¾d. to 5¾d. per lb.

POTASSIUM PRUSSIATE.—Demand continues fair at £59 per ton for quantities.

SODA ACETATE is in very short supply, price remains firm at £19 15s. to £20 per ton according to quantity.

SODA BICHROMATE.—Unchanged at 3¾d. per lb.

SODA CHLORATE also continues very firm at from £26 to £28 per ton. with good demand.

SODA NITRITE continues firm at £19 10s. to £20 per ton, demand is good.

SODA PRUSSIATE.—Firm at 4¼d. per lb.

SODA SULPHIDE.—Unchanged.

ZINC SULPHATE.—Unchanged.

Coal Tar Products

There is little change to report in the values of coal tar products from last week, and the market remains quiet.

90's BENZOL remains unchanged at about 1s. 4d. to 1s. 5d. per gallon on rails, while the motor quality is quoted at 1s. 1½d. to 1s. 2½d. per gallon.

PURE BENZOL is worth about 1s. 6½d. to 1s. 7d. per gallon, on rails.

CREOSOTE OIL is firm, and is quoted at about 7½d. per gallon on rails in the North, while the price in London is about 8½d. per gallon.

CRESYLIC ACID is unchanged, at about 2s. 2d. per gallon ex works for the pale quality 97/99%, while the dark quality 95/97% is worth about 1s. 11d. per gallon.

SOLVENT NAPHTHA is quoted at about 10d. per gallon on rails.

HEAVY NAPHTHA is unchanged, being worth about 11d. per gallon on rails.

NAPHTHALENES are steady, at about £6 15s. to £7 per ton for the 74/76 quality, and at about £8 to £8 15s. per ton for the 76/78 quality.

PITCH is quiet. To-day's value is about 85s. f.o.b. U.K. port.

Latest Oil Prices

LONDON, November 30.—LINSEED OIL steady. Spot, ex mill, £29 15s.; December, £28 15s.; January to April, £29; May to August, £29 12s. 6d. RAPE OIL quiet. Crude, extracted, £44; technical refined, £46, naked, ex wharf. COTTON OIL steady. Refined common edible, £44; Egyptian crude, £38; deodorised, £46. TURPENTINE steady and 3d. higher. American, spot and December, 35s.; January to April, 36s. 9d. per cwt.

HULL, November 30.—LINSEED OIL.—Spot to December, £29 10s.; January to April, £29 12s. 6d.; May to August, £29 17s. 6d. COTTON OIL.—Bombay crude, £32 10s.; Egyptian crude (new), £36 15s.; edible refined, £40; technical, £36 15s.; deodorised, £42. PALM KERNEL OIL.—Crushed naked, 5½ per cent., £39. GROUNDNUT OIL.—Crushed/extracted, £47; deodorised, £51. SOYA OIL.—Extracted and crushed, £36; deodorised, £39 10s. RAPE OIL.—Crude/extracted, £43; refined, £45 per ton, net, cash terms, ex mill. COD OIL, 30s. 6d. per cwt. barrels.

Nitrogen Products

Export.—Inquiries from overseas continue to reach sellers here. Prices remain unchanged at £9 8s. to £9 10s. 6d. per ton f.o.b. U.K. port in single bags. Reports from the Continent indicate a substantial move-out of sulphate from producers' works to consuming centres.

Home.—The home market remains quiet. Although prices are advanced 3s. per ton for December delivery, there has been very mild interest during the second half of November.

Nitrate of Soda.—The nitrate market, though quieter, continues fair, with prices unchanged. This is due to the small quantity available for shipment from Chile between now and March next. It is anticipated that this quantity will find ready outlet.

South Wales By-Products

THERE is very little change to report in South Wales by-product activities. The demand for pitch is moderate and is unlikely to increase for some time to come. Prices remain unchanged from 77s. 6d. to 82s. 6d. a ton. Crude naphthalene has a quiet demand at £4 10s. to £5 per ton; crude tar has a moderate call at 60s. to 65s. per ton. Refined tars are slightly better, coke oven tar selling at 8½d. to 9d. per gallon, and gasworks tar at 7d. to 7¾d. per gallon, f.o.r. maker's works, and 10d. to 1s. delivered in barrels. Solvent naphtha is quiet, with prices ruling 10d. to 1s. 0½d. per gallon, f.o.r. maker's works. The patent fuel demand is not so good, but heavy contracts are now open, and these, when they materialise, should see a very big increase in business. The Algerian Government and other Eastern buyers are in the market for large consignments, and it is expected that contracts amounting to nearly a quarter of a million tons will be placed in all. Patent fuel prices range from 23s. to 24s. a ton; coke (best foundry), from 35s. to 37s. 6d. a ton; and other sorts from 27s. 6d. to 35s. a ton.

Calcium Cyanamide 19 Per Cent. N

ADVANCE inquiries are being made for spring use, and in the meantime the demand for immediate delivery continues to be satisfactory. The farmers' price for 4-ton lots for December delivery is £8 14s. per ton, carriage paid to any railway station in Great Britain.

The Alkali Works Order, 1927

THE Minister of Health has issued the Alkali, etc., Works Order, 1927, which is to come into force on April 1, 1928. The following gases and fumes are added to those included within the expression "noxious or offensive gas" in the Alkali, etc., Works Regulation Act, 1906: sulphuric anhydride, sulphur dioxide (except that from the combustion of coal), bromine and its acid compounds, iodine and its acid compounds, arsenic and its compounds, ammonia, pyridine, fumes from benzene works, and from paraffin oil works. Extended descriptions are given of the following works scheduled in the Act of 1906: nitric acid, arsenic, paraffin oil, bisulphite and tar works, and the list has been extended to the following additional works: benzene, pyridine, bromine, and hydrofluoric acid works. The order is dated November 25, and may be obtained from the Stationery Office or its branches, price one penny.

ARTIFICIAL SILK NEWS.—The Drapers' Organiser Exhibition of British Artificial Silk Goods will be held from March 19 to 24, 1928, at the Holland Park Hall, London, W.11. The agreement between Czecho-Slovak and German artificial silk manufacturers concerning prices and production expires at the end of this year. Negotiations have been commenced, however, for a prolongation of the agreement, and their development gives hope of a favourable conclusion.—The Excise returns for Northern Ireland for the September quarter show for the first time a return of the artificial silk yarn at 33,854 lb. which is due to the starting up of the plant of Sunsheen, Ltd., which has been producing since September at the rate of 20,000 lb. a day.—The new Rhodiaseta acetate silk factory is to be erected at Freiburg as this town has granted more favourable conditions regarding taxes and electric power than Karlsruhe. Dr. Fritz Thyssen has joined the board of the new company.

Scottish Chemical Market

The following notes on the Scottish Chemical Market are specially supplied to THE CHEMICAL AGE *by Messrs. Charles Tennant and Co., Ltd., Glasgow, and may be accepted as representing the firm's independent and impartial opinions.*

Glasgow, November 30, 1927.

DURING the past week the heavy chemical market has been fairly active, quite good inquiry being received for prompt delivery, also for contracts over next year. There is no important change in price to advise since last week.

Industrial Chemicals

ACETONE, B.G.S.—Quoted £59 to £62 per ton, ex store, according to quantity.

ACID ACETIC.—98/100%, glacial, £56 to £67 per ton, according to quality and packing, c.i.f. U.K. ports; 80%, pure, £37 10s. per ton, ex wharf; 80%, technical, £37 10s. per ton, ex wharf.

ACID BORIC.—Crystals, granulated, or small flakes, £30 per ton. Powdered, £32 per ton, packed in bags, carriage paid U.K. stations.

ACID CARBOLIC, ICE CRYSTALS.—Quoted 7½d. per lb., f.o.r. U.K. ports.

ACID CITRIC, B.P. CRYSTALS.—Quoted 1s. 6¾d. per lb., less 5%, ex wharf.

ACID HYDROCHLORIC.—Usual steady demand. Arsenical quality, 4s. 9d. per carboy. Dearsenicated quality, 6s. 3d. per carboy, ex works.

ACID NITRIC, 80°.—Quoted £23 5s. per ton, ex station, full truck loads.

ACID OXALIC, 98/100%.—On offer from the Continent at 3¾d. per lb., ex wharf. Spot material quoted 3¾d. per lb., ex store. In better demand.

ACID SULPHURIC, 144°.—£3 12s. 6d. per ton; 168°, £7 per ton, ex works, full truck loads. Dearsenicated quality, 20s. per ton more.

ACID TARTARIC, B.P. CRYSTALS.—Still in little demand but price unchanged at 1s. 2¾d. per lb., less 5%, ex wharf.

ALUMINA SULPHATE, 17/18%, IRON FREE.—Spot material quoted £5 12s. 6d. per ton, ex store. On offer for early delivery at £5 5s. per ton, c.i.f. U.K. ports.

ALUM POTASH.—Lump quality quoted £8 5s. per ton, c.i.f. U.K. ports; crystal meal, 10s. per ton less. Lump quality on spot offered at £9 per ton, ex store.

AMMONIA, ANHYDROUS.—Unchanged at about 9d. per lb., carriage paid. Containers extra and returnable.

AMMONIA CARBONATE.—Lump, £37 per ton; powdered, £39 per ton, packed in 5 cwt. casks, delivered or f.o.b. U.K. ports.

AMMONIA LIQUID, 880°.—Unchanged at about 2½d. to 3d. per lb., delivered according to quantity.

AMMONIA MURIATE.—Grey galvanisers' crystals of British manufacture unchanged at £23 to £24 per ton, ex station. Continental on offer at £19 15s. per ton, c.i.f. U.K. ports. Fine white crystals quoted £17 10s. per ton, c.i.f. U.K. ports.

ARSENIC, WHITE POWDERED.—Spot material on offer at £21 per ton, ex store. Quoted £20 per ton, ex wharf, for prompt despatch from mines.

BARIUM CARBONATE, 98/100%.—English material on offer at £7 5s. per ton, ex station. Continental quoted £7 per ton, c.i.f. U.K. ports.

BARIUM CHLORIDE, 98/100%.—Large white crystals quoted £6 17s. 6d. per ton, c.i.f. U.K. ports.

BLEACHING POWDER.—Contract price to consumers £8 per ton, ex station, minimum 4-ton lots. Spot material 10s. per ton extra. Continental on offer at £7 5s. per ton, ex wharf.

BORAX.—English manufacturers' prices unchanged as follows:—Granulated, £19 10s. per ton; crystals, £20 per ton; powdered, £21 per ton. Odd parcels of granulated on offer from America at about £16 per ton, ex wharf.

CALCIUM CHLORIDE.—English manufacturers' price unchanged at £5 to £5 5s. per ton, ex station, with a slight reduction for contracts. Continental now on offer at £3 10s. per ton, c.i.f. U.K. ports.

COPPERAS, GREEN.—Unchanged at about £3 10s. per ton f.o.r. works, or £4 12s. 6d. per ton f.o.b. U.K. ports, for export.

COPPER SULPHATE.—Continental material quoted £23 per ton, c.i.f. U.K. ports. British on offer at £24 per ton, ex store.

FORMALDEHYDE, 40%.—On offer at £37 5s. per ton, c.i.f. U.K. ports. Spot material quoted £39 per ton, ex store.

GLAUBER SALTS.—English material unchanged at £4 per ton, ex store or station. Continental quoted £2 15s. per ton, c.i.f. U.K. ports.

LEAD, RED.—Imported material on offer at about £28 per ton, ex store.

LEAD, WHITE.—Quoted £28 10s. per ton, ex store.

LEAD ACETATE.—White crystals quoted £39 15s. per ton, c.i.f. U.K. ports; brown about £38 10s. per ton, c.i.f. U.K. ports. Spot material on offer at £42 15s. per ton, ex store, spot delivery.

MAGNESITE, GROUND CALCINED.—Quoted £8 10s. per ton, ex store, in moderate demand.

POTASH CAUSTIC, 88/92.—Solid quality quoted £28 15s. per ton, c.i.f. U.K. ports, minimum 15-ton lots. Under 15-ton lots, £29 10s. per ton; liquid, £15 per ton, minimum 15-ton lots. Under 15-ton lots, £15 7s. 6d. per ton, c.i.f. U.K ports.

POTASSIUM BICHROMATE.—Unchanged at 4½d. per lb., delivered.

POTASSIUM CARBONATE, 96/98%.—Rather scarce for immediate delivery. Quoted £25 10s. per ton, ex wharf. Spot material about £26 10s. per ton, ex store.

POTASSIUM CHLORATE, 99/100%.—On offer from the Continent at £25 10s. per ton, c.i.f. U.K. ports, for powdered quality. Crystals, 30s. per ton extra.

POTASSIUM NITRATE.—Quoted £20 per ton, c.i.f. U.K. ports. Spot material available at £21 per ton, ex store.

POTASSIUM PERMANGANATE, B.P. CRYSTALS.—Quoted 6½d. per lb., ex store, spot delivery.

POTASSIUM PRUSSIATE (YELLOW).—Unchanged at about 6½d. per lb., ex store, spot delivery. Offered from the Continent at 6¾d. per lb., ex wharf.

SODA CAUSTIC.—Powdered, 98/99%, £19 7s. 6d. per ton; 76/77%, £15 10s. per ton; 70/72%, £14 10s. per ton, carriage paid station, minimum 4-ton lots on contract. Spot material, 10s. per ton extra.

SODIUM ACETATE.—In good demand and still scarce for prompt delivery. Quoted £18 5s. per ton, c.i.f. U.K. ports. British material quoted £22 per ton, ex store.

SODIUM BICARBONATE.—Refined recrystallised quality, £10 10s. per ton, ex quay or station. M.W. quality, 30s. per ton less.

SODIUM BICHROMATE.—Quoted 3¾d. per lb., delivered buyers' works.

SODIUM CARBONATE (SODA CRYSTALS).—£5 to £5 5s. per ton, ex quay or station. Powdered or pea quality, 27s. 6d. per ton extra; alkali, 58%, £8 10s. per ton, ex quay or station.

SODIUM HYPOSULPHITE.—Large crystals of English manufacture quoted £9 10s. per ton, ex store, minimum 4-ton lots. Continental on offer at about £8 2s. 6d. per ton, ex wharf, prompt shipment. Pea crystals of British manufacture, quoted £15 5s. per ton, ex station, 4-ton lots.

SODIUM NITRITE, 100%.—Quoted £19 10s. per ton, ex store.

SODIUM PRUSSIATE (YELLOW).—In moderate demand and price unchanged at about 4¾d. per lb., ex store. Offered for prompt shipment from the Continent at 4½d. per lb., ex wharf.

SODIUM SULPHATE (SALTCAKE).—Price for home consumption, £3 7s. 6d. per ton, ex works.

SODIUM SULPHIDE.—Manufacturers advise an appreciable reduction in price for next year. Present prices for English material are as follows:—60/62% solid, £10 10s. per ton; broken, £11 10s. per ton; flakes, £13 5s. per ton; crystals, 31/34%, £7 10s. per ton to £8 5s. per ton, according to quality, delivered your works, minimum 4-ton lots on contract. Prices for spot delivery, 5s. per ton higher for solid, 2s. 6d. per ton for crystals. Offered from the Continent at about £9 5s. per ton, c.i.f. U.K. ports. Broken, 15s. per ton extra.

SULPHUR.—Flowers, £12 per ton; roll, £10 15s. per ton; rock, £10 12s. 6d. per ton; floristella, £9 10s. per ton; ground American, £9 5s. per ton; ex store. Prices nominal.

ZINC CHLORIDE.—British material, 98/100%, quoted £24 15s. per ton, f.o.b. U.K. ports; 98/100%, solid on offer from the Continent at about £21 15s. per ton, c.i.f. U.K. ports; powdered, 20s. per ton extra.

ZINC SULPHATE.—Continental material quoted £11 15s. per ton, ex wharf.

NOTE.—The above prices are for bulk business and are not to be taken as applicable to small parcels.

British Industries Fair's Progress

THE British Industries Fair, to be held in London and Birmingham from February 22 to March 2 next, will be at least one-third larger than this year's Fair, according to an answer given in Parliament on Monday by Mr. Douglas Hacking, M.P., the new head of the Department of Overseas Trade. Mr. Hacking informed Sir Harry Brittain, M.P., that the space applied for in London and Birmingham was 403,488 square feet as compared with 285,848 booked on the same date last year. The total exhibition area of the last Fair was 300,258 square feet.

Manchester Chemical Market

(From Our Own Correspondent).

Manchester, December 1, 1927.

With the nearer approach of the year end there seems to be a growing tendency among chemical buyers, so far as the Manchester market is concerned at all events, to restrict purchases as much as possible, and little more than what might be termed a day-to-day business is now being done in connection with the bulk of home users' needs. Export business on this market is also confined within comparatively narrow limits, though a fair trade in certain of the heavy products is being put through for the Dominions and the East.

Heavy Chemicals

There is some inquiry about for nitrite of soda, and prices remain firm at up to £19 5s. per ton. In the case of sulphide of sodium, however, buying interest seems still to be restricted and values have an easy tendency, current quotations being at about £9 12s. 6d. per ton for the 60-65 per cent. concentrated solid material and £8 10s. for the commercial. There is a quiet steady demand about for bichromate of soda at from 3d. to 3⅛d. per lb. Chlorate of soda is rather a slow section, but at 2¾d. per lb. there has been little change in the price situation. Inquiry for phosphate of soda is of moderate extent, with current offers steady and ranging from £12 10s. to £12 15s. per ton. Bicarbonate of soda is fully maintained at about £10 10s. per ton, and a fair trade continues to be done. Caustic soda is in steady request and values are held at from £12 10s. to £16 10s. per ton, according to quality. Glauber salts are offering at round £3 5s. per ton and saltcake at £3 10s., but in neither case is there much buying interest. Hyposulphite of soda is on the quiet side, but prices are steady at from £16 10s. to £16 15s. per ton for photographic crystals and about £9 10s. for commercial. There is a quietly steady demand about for alkali and £6 15s. per ton continues to be quoted here for this material. Prussiate of soda keeps steady at 4¼d. per lb., but in this case business at the moment seems to be on rather slow lines.

The demand for carbonate of potash during the last few days seems to have been rather inactive, though prices are steady at about £26 10s. per ton. Caustic potash is fully maintained at up to £31 per ton, and a fair amount of buying interest is being shown. Yellow prussiate of potash is moving off in moderate quantities and quotations seem quite steady at from 6½d. to 6¾d. per lb. Bichromate of potash also is well held at round 4¼d. per lb., and is attracting a fair amount of attention. Chlorate of potash, however, is still on the quiet side with prices about unchanged at 2¾d. per lb. There is little alteration either in price or position of permanganate of potash; for the B.P. quality about 6⅜d. per lb. is being asked to-day, whilst the commercial material is selling at round 5⅛d.

The moderate demand reported for arsenic seems to be sufficient to absorb the available offers of the material, and quotations are fairly steady at £17 15s. per ton at the mines for white powdered, Cornish makes. A quietly steady trade is passing in sulphate of copper, with export prices still ranging from £24 to £24 5s. per ton, f.o.b. Acetate of lime remains firm on scarcity of prompt supplies at from £16 10s. to £16 15s. per ton for the grey quality and round £10 10s. for the brown. The acetates of lead meet with some inquiry and values seem to be steadying up again, white being quoted at up to £41 per ton and brown at £39 5s. Nitrate of lead is quiet and about unchanged on the week at £38.

Acids and Tar Products

Tartaric acid is in limited request, and quotations are easy at about 1s. 2⅜d. per lb. Citric acid keeps fairly steady in the neighbourhood of 1s. 6½d. per lb., although the demand is on the slow side. Oxalic acid is rather quiet, but quotations are still at round 3½d. per lb. There is a moderate inquiry about for acetic acid, and prices are unchanged from last week at £37 per ton for the 80 per cent. commercial quality and £66 10s. for the glacial.

A fair amount of interest is being shown in pitch, and prices are steady at £4 5s. per ton, f.o.b. Solvent naphtha is in quiet demand and, though easy, is about unchanged at 11¼d. per gallon. Creosote oil is firm, and meets with a steady inquiry at from 7¾d. to 8d. per gallon. Carbolic acid is in quiet demand and prices have an easy tendency at round 2s. 4d. per gallon for crude and from 7¼d. to 7½d. per lb. for crystals.

Fusing Caustic Soda with Electric Heat

The General Electric Co., U.S.A., announces the installation of electrically heated pots for the fusion of caustic soda at the plant of the Riordon Pulp Corporation, Quebec. The Riordon Corporation estimates that it saves more than ten thousand dollars annually with the electric process.

Each pot is approximately ten feet in inside diameter and six feet in depth and holds approximately 2,600 imperial gallons. The pots are set in brickwork consisting of 4½ inches of red brick outside, 9 inches of insulating brick, and a 4½ inch fire brick wall inside. The heating elements have a connected load of 500 kilowatts at 550 volts, 3 phase, there being two circuits of 250 kilowatts each. Automatic temperature control is provided and Leeds and Northrup and Brown control pyrometers are employed.

When the current is turned on at the cold fusing kettles, the temperature rises to 1,200° F. in 5 to 6 hours. This temperature is maintained in the chamber outside the pot and at 1,200° the heat is conducted through the pot to the liquid as fast as it is generated. This temperature remains at about 1,200° during the first 40 hours of the operating cycle. Liquid is run in over a 50-hour period and during this time a total of 75,000 pounds of solution from the evaporators has been run into the pot and 45,000 pounds of water evaporated. At the end of 50 hours the caustic is sufficiently concentrated to permit an increase of temperature and at the end of a 56-hour period from the start of the cycle the 30,000 pounds of caustic in the pot reaches a temperature of approximately 800° F. and fuses into a solid state. The heat is then turned off and the caustic pumped into steel barrels where it solidifies. The Riordon Pulp Corporation has its own water power plant and figures its electricity at 0·25 cent per kilowatt hour. Based on a production of 60 pounds of caustic soda per week, requiring 1,350 kilowatt hours per ton, the annual cost of electricity for the process is $10,400. For the same production using coal at $7 per ton and labour at $30 per week, the cost would be $21,200 per year.

Investigations into Rivers Pollution

An important statement as to the Government's intention to tackle the problem of river pollution was made by Lord Gainford at a meeting of the Tees Fishery Board on Tuesday.

The Department of Scientific and Industrial Research proposes to concentrate on the Tees as a typical river for their investigations, and to work in co-operation with the joint committee of representatives of the Fishery Board and the riverside industries. These bodies are asked to prepare an extended scheme, from which results for national application can be obtained. The Tees, said Lord Gainford, had been chosen because it was the worst river for pollution, and was consequently the best for scientific investigation in the limited area between Yarm and the estuary.

During the trade stoppage of last year it was realised that pollution was not entirely due from trade works, but that sewage from Stockton and Middlesbrough was playing a great part in causing the nuisance.

Chalk Fuel Case: Alleged Fraud

Before Alderman Sir G. Truscott, at the Mansion House on Wednesday, Sir C. Buckworth-Herne-Soame, Bt., Robert George Harley, and Col. Edmund Octavius Eaton appeared to adjourned summonses charging them with conspiracy to defraud in reference to reports purporting to be reports of qualified engineers, issued by the Chalk Fuel Power Gas and By-Products Corporation, Ltd. The reports were declared by the prosecution, at the instance of the City Solicitor, to be entirely fictitious. Questioned by Mr. Valetta, for the defence, Mr. Franklin, an engineer, said that in 1914 he was a member of the Fulham Borough Council; upon being handed a reprint from a local newspaper purporting to be a report of successful tests carried out by Councillor Franklin on the Chalk Fuel, then known as "Suddene," he said he had never seen this report until shown it by the police; he did not write it, inspire it, or authorise it. Replying to Mr. Clarke (for the City Solicitor), he said that as to a test made at the Armagh works, he was present, but had nothing to do with it. He told Col. Eaton of the unsatisfactory nature of the tests he had made. The case was adjourned until December 8.

Company News

BRITISH OXYGEN CO.—An interim dividend of 9d. per share has been declared.

BROUGHTON COPPER CO.—An interim dividend has been declared on the ordinary shares of 10 per cent.

DUNSTABLE PORTLAND CEMENT CO.—An initial dividend of 5 per cent. is to be paid on the ordinary shares, on account of the year ending March 31 next.

POWER GAS CORPORATION.—The directors recommend a dividend of 5 per cent., less tax, for the year ended September 30, 1927. Last year a dividend of 4 per cent. was paid.

ARNOLD I. VAN DEN BERG EMBALLAGE FABRIEKEN NAAMLOOZE VENNOOTCHAP.—An interim dividend of 7½ per cent. has been declared on the common stocks "A," payable on December 1.

BLEACHERS' ASSOCIATION.—The directors announce an interim dividend of 6d. per share, less income tax, which is equal to 2½ per cent., and compares with 1⅝ per cent. (4d. per share) last year.

TREDEGAR IRON AND COAL CO.—The directors have decided to pay no interim dividend for the half-year ended September 30, 1927. Last year there was an interim of 2½ per cent., tax free, followed by a final of a similar amount, making 5 per cent., tax free, for year.

TANKERS, LTD.—Shareholders have been informed by circular that the Court has now confirmed the special resolutions passed by the shareholders on July 21 last, and confirmed on August 5, reducing the denomination of the company's preference shares from £1 to 10s. each.

BRITISH BURMAH PETROLEUM CO.—The net profits for the year ended July 31 amounted to £131,890, and £5,393 was brought forward, while there was a refund of £8,578 from taxes. A dividend of 4½d. per share, free of tax, is proposed, absorbing £46,701, and the balance will be carried forward.

SANTA CATALINA NITRATE CO.—For the year ended June 30 last, the net profits amounted to £550, and £3,723 was brought forward, while £4,000 was transferred from the reserve account. It is proposed to write off closing down expenses £1,861, and £6,123 off stoppage expenses, leaving £289 to be carried forward.

BIRMINGHAM ALUMINIUM CASTINGS.—The accounts for the year ended July last show the profit amounted to £15,565, and the balance of £25,227 brought in makes an available total of £40,793. After payment of preference dividend a distribution is proposed of 7 per cent. on the ordinary shares, less tax, carrying forward £29,593. For the previous year the balance was £14,457, the dividend being at the same rate.

SANTIAGO NITRATE CO.—The report for the year ended June 30, 1927, states that the gross profit was £12,161, which, added to the balance of £3,643 standing to the credit of profit and loss account, amounts to £15,804. After deducting London expenses, Nitrate Association charges, and other expenses, there remains a balance of £4,776, which it is proposed to carry forward. The annual meeting will be held at 10, Lime Street, London, E.C., on December 7, at 12.30 p.m.

BROKEN HILL SOUTH.—The net profit for the year ended June 30 last was £320,818, compared with £485,868 for the preceding year. After adding £75,205 appropriated for plant and development last year and not expended, and the balance of £237,891 brought forward, the available total is £663,915. Dividends and bonuses have been paid amounting to 45 per cent., against 65 per cent.; £13,333 is allowed for debenture sinking fund, and £120,000 set aside for plant and development, leaving an undivided balance of £140,583. Since the date of the accounts a dividend of 1s. 6d. per share has been paid.

BRITISH CEMENT PRODUCTS AND FINANCE CO.—In their first annual report to November 16, 1927, the directors state that the net profits amounted to £124,753. After writing off the whole of the preliminary and new issue expenses there remains £107,280. The directors recommend placing £10,728 to special reserve account, £24,772 to general reserve, paying a dividend of 15 per cent. on the ordinary shares, dividend of 95 per cent. on the deferred shares, bonus of 11·4 per share on the deferred shares, leaving £14,780 to be carried forward. The annual meeting will be held at Winchester House, London, on December 6, at 12 noon.

Chemical Trade Inquiries

The following inquiries, abstracted from the "Board of Trade Journal," have been received at the Department of Overseas Trade (Development and Intelligence), 35, Old Queen Street, London, S.W.1. British firms may obtain the names and addresses of the inquirers by applying to the Department (quoting the reference number and country), except where otherwise stated.

INDIAN GUM TRAGACANTH.—The Indian Trade Commissioner in London reports that he is desirous of being placed in touch with firms in the United Kingdom who can supply Indian gum tragacanth. Inquiries should be addressed to the Indian Trade Commissioner, 42, Grosvenor Gardens, London, S.W.1.

SHELLAC.—A commission agent in Bremen desires to represent, in Germany, British exporters of the above. (Reference No. 458.)

Tariff Change

AUSTRIA.—Cryolite and various ethers and esters are included in the articles to which the new Austrian import duties are applicable. Details are contained in the *Board of Trade Journal* for November 24, 1927.

British Standard Paints

THE British Engineering Standards Association has recently issued three new British standard specifications for brunswick or chrome green oil paste for paints, indian reds (pale, middle and deep), for paints and black oxide of iron for paints. They contain clauses regulating the composition, together with standard reception tests, for the purchase of these materials, together with appendices giving methods of carrying out the tests. These specifications have been prepared at the request of the paint manufacturers by a committee representative of both the buying and manufacturing interests, and, as in the case of all British standard specifications, they will be reviewed as experience of their working or progress in the industry renders it necessary, and revised issues will be published from time to time.

Copies of these three new specifications (Nos. 304, 305, and 306, 1927) can be obtained from the British Engineering Standards Association (Publications Department), 28, Victoria Street, London, S.W.

International Holdings and Investment Co., Ltd.

GENERAL meetings of shareholders holding fully paid and partly paid shares respectively in the International Holdings and Investment Co., Ltd., and an extraordinary general meeting of the company were held on Thursday, November 24, Mr. Alfred Loewenstein presiding, to consider proposals for the liquidation of the company. A resolution was carried, authorising the liquidation and the distribution of assets on the footing that unpaid premiums on shares issued at a premium be not called up, but that the common shares and the 6 per cent. cumulative preferred shares of the International Holdings and Investment Co., Ltd. (incorporated in Canada), be distributed in the proportion of one common share, no par value, in respect of every 20 shares held and one 6 per cent. cumulative preferred share of $100 in respect of every 40 shares held on which shares no sum was payable or callable in respect of premium. Mr. R. V. Moore was appointed liquidator.

German Potash Industry

THE British Commercial Secretaries at Berlin state that although in 1926 the very favourable results achieved in the German potash industry during 1925 were not attained, and sales showed a diminution of some 125,000 tons to 1,100,000 tons, they far exceeded the 1924 sales of 843,860 tons. It is true that German inland sales, which account for nearly 60 per cent. of production, showed a reduction in 1926, but this would seem to be counterbalanced by increased sales during the first quarter of this year, largely attributable to the mild weather. Foreign sales did not develop to the extent which had been hoped, but were doubtless in some measure temporarily influenced by the change in the foreign sales organisation consequent upon the conclusion of the Franco-German Potash Agreement. Foreign sales are now undertaken conjointly by the German Potash Syndicate and the Société Commerciale des Potasses d'Alsace.

"Firefoam" not "Foam"

The foam type of fire appliance, as represented in the Home Office Industrial Museum by the Foamite Extinguisher, is recognised by all authorities to be the most effective upon fires involving inflammable liquids. This opinion is undoubtedly the result of the unequalled success of Firefoam, which is produced by all Foamite appliances.

Firefoam has, on many occasions, extinguished *promptly* and *completely* fires upon oil storage tanks of over 100 ft. in diameter. It is the only foam which has been used effectively upon burning liquid surfaces of so great a size. Its consistency is such that the heat produced by conflagrations of this dimension does not break it down. Firefoam reaches the oil or spirit as foam and spreads in every direction until each square inch is completely blanketed and extinguished.

The success of Firefoam lies in the special properties of the foaming ingredient used—Firefoam Liquid. This is a patented chemical made by a secret process and is only obtained in Foamite charges. Always specify "Foamite" appliances when needing efficient apparatus of the foam type. You will then ensure that the fire extinguishing medium at hand is that same Firefoam which has been *proved to be the most effective foam.*

Note.—"Firefoam" and "Foamite" are trade marks.

Write for a free copy of "Extinguishing Oil and Other Fires," which describes, in addition to all Foamite appliances, extinguishers of other types supplied by Foamite Firefoam Ltd., 55-57, Great Marlborough Street, London, W.1.

Foamite Fire Protection

A COMPLETE ENGINEERING SERVICE
AGAINST FIRE.

Telegrams: Regent 3105-6-7.

Telegrams: Foamite, Wesdo London.

Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for any errors that may occur.

County Court Judgments

[*NOTE.—The publication of extracts from the "Registry of County Court Judgments" does not imply inability to pay on the part of the persons named. Many of the judgments may have been settled between the parties or paid. Registered judgments are not necessarily for debts. They may be for damages or otherwise, and the result of bona-fide contested actions. But the Registry makes no distinction of the cases. Judgments are not returned to the Registry if satisfied in the Court books within twenty-one days. When a debtor has made arrangements with his creditors we do not report subsequent County Court judgments against him.*]

SWIGG, F. C. (trading as the OLIA CO.), 4, Brown Street, Salisbury, perfume manufacturer. (C.C., 3/12/27.) £11 9s. October 19.

WILLIAMS (FRANCIS) AND SON, 48, Scrutton Street, Finsbury, E.C., oil blenders. (C.C., 3/12/27.) £21 3s. 3d. October 25.

Mortgages and Charges

[***NOTE.—The Companies Consolidation Act of 1908 provides that every Mortgage or Charge, as described therein, shall be registered within 21 days after its creation, otherwise it shall be void against the liquidator and any creditor. The Act also provides that every Company shall, in making its Annual Summary, specify the total amount of debts due from the Company in respect of all Mortgages or Charges. The following Mortgages and Charges have been so registered. In each case the total debt, as specified in the last available Annual Summary, is also given—marked with an *—followed by the date of the Summary, but such total may have been reduced.***]

HURLINGHAM DYEING AND FINISHING CO., LTD. (M., 3/12/27.) Registered November 17, £1,000 debenture, to London Housing Society, Ltd., 116, Judd Street, W.C.; general charge. *Nil. July 20, 1927.

Satisfactions

ALLIANCE (MANCHESTER), LTD., chemical dealers. (M.S., 3/12/27.) Satisfaction registered November 21, all moneys, etc., registered May 10, 1927.

BRITON FERRY CHEMICAL AND MANURE CO., LTD., London, E.C. (M.S., 3/12/27.) Satisfaction registered November 8, £150,000, registered May 4, 1921, and June 9, 1922.

London Gazette, &c.

Companies Winding Up Voluntarily

CELLULOSE ACETATE, LTD. (C.W.U.V., 3/12/27.) H. Bartram, 261, Putney Bridge Road, London, S.W., appointed as liquidator, November 10.

LYMN BOWATER CHEMICAL CO., LTD. (C.W.U.V., 3/12/27.) At an extraordinary general meeting of this company held at 39, Victoria Street, London, S.W.1, on October 31, the following special resolution was duly passed; and at a subsequent extraordinary general meeting on November 15 was duly confirmed: "That as the company has done no business for the past six years, and as it has neither assets nor liabilities, it should now be wound up voluntarily; and that Mr. J. J. Bowater be and he is hereby appointed liquidator."

Partnership Dissolved

LOTOR MANUFACTURING CO. (David Albert EVANS and John PERCIVAL), 1, Morford Street, Bath, soap powder manufacturers, by mutual consent as from October 1, 1927. The business will be carried on by D. A. Evans. Debts received and paid by D. A. Evans.

New Companies Registered

F. W. HAMPSHIRE AND CO. (1927), LTD. Registered as a "public" company on November 29. Nom. capital, £155,000 in 75,000 7½ per cent. cumulative preference (with priority as to capital) and 80,000 ordinary shares of £1 each. To acquire the business of manufacturing chemists and general manufacturers, now carried on by F. W. Hampshire and Co., Ltd., at Riverside Works, Derby and elsewhere, and to carry on the business of wholesale, retail, manufacturing and dispensing chemists and general manufacturers, druggists, drysalters, artists' colourmen, dealers in oils, paints, colours and brushes, and artists' and painters' requisites of all kinds, etc. A subscriber: J. R. Bowring, 13, Milton Road, Gorringe Park, Mitcham, Surrey.

LOFTINE (1927), LTD. Registered November 26. Nom. capital, £4,000 in £1 shares. Objects: To acquire the business of manufacturers of and dealers in textile detergent compositions for use in wool scouring and for other industrial and domestic purposes, and particularly the preparation known as "Loftine," together with the formulæ thereof, carried on at Alpha Mills, Ilkley, by Loftine, Ltd. A director: L. Shaw, Alpha Mills, Ilkley.

Graduate Course in High Pressure Synthetic Methods

THE Chemical Engineering Department of the Massachusetts Institute of Technology offers a graduate course in high pressure synthetic methods during the second term of the academic year. Emphasis will be placed upon the broad underlying principles, upon the point of view of economics, chemical engineering, thermodynamics, catalysis, and possible future developments, especially along the lines of scientific fuels and other organic products. So far as we are aware, this is the first course of this character to be scheduled in American institutions of higher learning. The student is to be given an insight into this new and rapidly developing field, significant points will be illustrated by numerous quantitative problems that the student will be expected to solve, and the various existing methods and processes will be discussed and collaborated.

The Institute has been conducting investigations in high pressure synthetic methods for the past two and one-half years and has equipment permitting operation up to 15,000 lb. per square inch. Five candidates for the doctor's degree are now carrying out experimental work in this general field, and articles growing out of this work have already been prepared for publication.

Socialism or Capitalism

A SECOND debate between Sir Ernest Benn, Bt., and Mr. James Maxton, Socialist M.P., took place at Brixton Palais de Danse on Friday evening, November 25, when the question, "Can Socialism Ensure a Better Standard of Living for the Workers than Capitalism?" was discussed before a very large audience under the auspices of the Clapham and District Branch of the Independent Labour Party. Mr. A. G. Gardiner presided.

Benn Brothers' Other Journals

THE CABINET MAKER.—British Quality Appeal; New White Star Liner; Notes from the Home Journals; The Surface Finish of Furniture.

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